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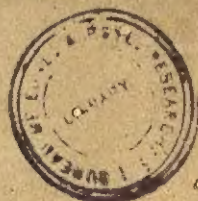
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MUSICAL PREFERENCES AND PERSONALITY DIAGNOSIS: I. A FACTORIZATION OF ONE HUNDRED AND TWENTY THEMES*

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A. THE SETTING OF THE PROBLEM

So powerful is the effect of music upon human emotions and so striking are the apparent changes in personality sometimes produced that one is surprised to find in the history of psychology and psychotherapy so little experimental, or even speculative, reference to the use of music in psychiatry. Probably the first sustained attempt to explore the value of music as therapy was made by a group of psychiatrists at the Walter Reed Hospital, during World War II, under the stimulus of the large number of psychiatric casualties requiring treatment. This first pragmatic approach has fortunately been developed into a more permanent research organization by one of the participants, Miss Paperte, in her creation of the Music Research Foundation. The present article proposes to review very briefly the nascent research in this area and to set out the results of a three-year research project supported partly by the Music Research Foundation and partly by the Graduate School of the University of Illinois.

In reviewing the first research results now belatedly blossoming it is instructive to perceive the reasons for the postponement of effective attacks. In the first place, the experimental psychologists have been in retreat from the general study of aesthetics ever since they were signally defeated by the problem at the beginning of this century. Secondly, the chief theory underlying psychotherapeutic advances, namely psychoanalysis, has been silent as to the mechanisms behind our aesthetic satisfactions. For Freud himself (to quote H. B. Lee) (20) stated, "The nature of artistic attainment is psychoanalytically inaccessible to us" and that psychoanalysis "can do nothing towards elucidating the nature of the artistic gift, nor can it explain the means by which the artist works." This did not prevent Freud himself and

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¹For detailed paper (or extended version or material supplementary to this article) order Document 3418 from American Documentation Institute, 1719 N Street, N. W., Washington 6, D. C., remitting \$1.00 for microfilm (images 1 inch high on standard 35 mm. motion picture film) or \$2.25 for photocopies (6 x 8 inches) readable without optical aid.

many other psychoanalysts attempting to get at the roots of literary creativity, but by contrast with fairly successful analyses of literature the realms of music and of graphic art have been significantly ignored. It is, of course, possible to point to psychoanalytic studies of musical creativity (21) and of musical satisfaction, as well as such sustained attacks on the problem of graphic art as that of Goitein (17), but the methodology and logic of these studies in general leaves one with greater admiration for the restraint of Freud, based on a wise appreciation of the difficulties of the subject, than for these attempts to fill the gap at all costs.

From a general psychological point of view, one may be more impressed by the evidence of music as a catharsis for unexpressed emotions than as an influence which can produce lasting changes of personality, despite the argument of Aristotle, and many others since, that relatively permanent effects upon personality may be produced by repeated exposure to certain kinds of music. Indeed one of the most likely theories on which to base research would be one analogous to Freud's theory of humor (15), namely, that the devices of melody and rhythm act as a fore-pleasure to bribe the censor, whereby the repressed emotional tendencies are released, in this case in the form of phantasy. That music acts as a distractor of potential conscious action upon the lower centers is indicated by the effective use of music by Cherry and Pallin (12) in anaesthesia. If catharsis of the unconscious can be continuously achieved by appropriate music, presumably some relatively permanent effects on personality would ensue.

Advance in our knowledge of psychotherapy, in any of its branches, must wait upon advance in possibilities of measurement of (a) the degree of improvement recorded under the influences applied and (b) the amount of the therapeutic activity applied. The present research concerns itself with the second of these but also very largely with the distinct problem of diagnosis. It asks: "Is there a tendency for preferences for certain kinds of music to be systematically related to the kinds of personality structure?" This is relevant to the second (therapeutic) problem above because it asks: "What type of music can in fact be regarded as an adjusting or therapeutic agent for this particular personality," and it can at least be argued as a tactically intelligent move in research, that we should begin our enquiries in this way by studying diagnosis rather than plunging directly into the harder problem of therapy. Our approach, in short, anticipates that there will be marked differences in the kinds of catharsis which different personalities will require, and argues that the investigation of these differences may be the best starting point for later work on psychotherapy itself.

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We have not been able to discover any psychological research whatsoever establishing relations between musical preference and personality, but we have found one or two studies in related areas useful in directing our planning. These studies, notably by Capurso, Kerr and Rigg, are concerned with the immediate emotional effect of music. The remarkable series of studies by Rigg (22, 23, 24, 25) has attempted the ultimate goal of analysing out the characteristics of musical phrases, etc., which consistently produce specific emotions. This work, based partly on the theories of Sorantin (28), is not *directly* related to the step by step progress of the present direction of research. Kerr (19) has concentrated on the general psychological effects of music. Capurso (1), aided by the Music Research Foundation, has attempted, as we have, to make a comprehensive survey upon which long term research can build architectonically. He has asked "What are the varieties of emotion which music can produce?" and "Can we build up a library of musical excerpts classified according to the emotional mood which each may be expected to produce?" He arrived at seven or eight emotional categories (a) Happy, elated, triumphant; (b) Soothing; (c) Agitating, stimulating restlessness; (d) Nostalgic, meditative; (e) Reverent, prayerful; (f) Sad, melancholy; (g) Eerie, weird, frightening. In our attempt described below to get the most catholic selection of music the lists in Capurso's categories offered one valuable sampling basis.

The aim of the research report in this and two succeeding articles (9, 10), sustained partly by the author's own research resources and partly by the Bonfils Fellowship and other assistance from the Musical Research Foundation, has been to investigate relations between musical choice and personality, in normal and pathological subjects. Secondly, it aims to produce a music choice test for personality diagnosis (11).

B. THE CONTROL OF INFLUENCES EXTRANEOUS TO PERSONALITY

Certain difficulties, sometimes asserted to be insurmountable, have from time to time been pointed out in the use of musical choices as the indicators of personality. For example, Chaplan, writing from the standpoint of a sociologist, has argued that "the written or stated reactions to music reveals semantic, culturally conditioned replies and are not necessarily conclusive" and he quotes Soibelman (27) as expressing doubts on existing methodology by saying: "What has been attempted is, in fact, the measurement of a mood which is transient and personal, by a unit that is itself evanescent and intangible." It must, indeed, be admitted that there is a considerable possible element of error in dealing with responses to music by means of the

questionnaire type of approach and that any analyses based on a literal use of the apparent meaning assigned by subjects in verbal responses is scientifically questionable. In the study which follows we have attempted as far as possible to take a "behavioristic" approach, limiting the subjects' participation to a mere indication of liking or aversion—of letting the music continue or shutting it off. The fuller interpretation of what emotional quality this liking or aversion has must be left to the pattern of responses in which it occurs.

Our aim must be to see first whether consistent, common patterns of choice exist in a set of musical excerpts and thereafter to discover what features of personality or stimulus situation are responsible for each of these. The factors, other than enduring personality traits, which might be responsible for consistent patterns are: the mood of the subjects through events prior to listening; the stimulus situation; and specific patterns of musical or general cultural education. As to the last of these, the culture to some extent determines what shall be considered harmonious in music just as it determines to some extent what shall be considered humorous in jokes.

In the main, we must address ourselves to this difficulty in music in the same way as we have done in our experimental work in humor (3), namely by aiming to establish relations to personality only within a certain culture, assuming that further work needs to be done before the tests are carried over any cultural frontier. Nevertheless, it is possible that certain patterns will be traceable to belonging to certain groups within our culture pattern. For example, the preference for jazz music in contra-distinction to classical, which appeared as a pattern in a study by Vernon (30), and which recurs in our results, seems to be part of a general cultural allegiance and is probably partly determined by social status and age.

The extent to which choices are determined by transient moods or stimulus situations was determined at the outset by repeating the choice test after a day, a month, six months. The result (below) shows that an appreciable influence must be allotted to these factors which, from the point of view of our present interest are merely annoying "error"; but it also demonstrates that enduring features of personality account for much of the variance.

In an exploratory study one must hold constant a great deal; but not anything one wishes to study. We held constant the age (and to some extent the education) of our subjects: we settled the question of how much error arises from mood and other influences which could not be held constant; and, as the following section shows, we controlled some extraneous influences in the musical choices by having all items played by the same person on one

instrument (piano) and by choosing pieces which, except for an accepted minority of definitely familiar pieces, would be new to all except persons with a musical education. The extent to which purely individual historical associations (idiosyncratic conditionings) reduce the common "temperamental" meaning of a piece of music can only be decided after factorization and the examination of the amount of common factor variance.

C. SELECTION OF THE MUSICAL ITEMS IN RELATION TO EXPERIMENTAL PRINCIPLES

The considerations governing the choice of musical items for this investigation can become clearer only now that the outline of the whole research design can be indicated. Our main hypothesis is that the dimensions of personality which have been discovered in other media, such as objective tests, questionnaires, and behavior ratings (2, 4, 5, 7) will show themselves also in musical choices. To test this, we might either correlate the musical items with measures of these personality dimensions or we might first establish independent factor dimensions within the musical choices and then correlate each of these with the personality dimensions. The second procedure seemed decidedly preferable, for it gives us independent evidence of the structure of musical choices, before we relate that to the personality dimensions, and it gives us a definite result even if the latter fails. In short, it permits us to build up two independent systems of factors which can then be interrelated, whereas the first procedure would give us no picture of the factor structure within the musical items as such.

For the reader unfamiliar with factor analysis (8) it should be pointed out that by intercorrelating the musical choices in every possible combination we shall be able to pick out certain clusters of items the members of each of which have something in common causing them to be liked by the same kind of person. Any individual can thereafter be given a score on each of these independent "dimensions" of choice according to the number of items he likes in such a cluster. The sound foundation which underlies such a score is to be contrasted with that which would result if anyone had arbitrarily put together a dozen pieces of music claiming that liking each is indicative of "introversion" or "neuroticism" or what not. Our first step, therefore, is to group choices, without *a priori* prejudice, in a way such that we know they all "pull together." The second is to relate each such cluster (factor) score to personality dimensions and to aesthetic preference patterns in other media. In this experiment we collected data for both, but are reporting here only on the first step of analysis.

From general psychological considerations we might anticipate that we should get between half-a-dozen and a dozen dimensions of musical choice by the factorization of choices. Now in order to get an adequate range of scores on any one of them, we ought strictly to have about a dozen items as measures of each dimension. That is to say, the subject could be scored from zero to 12 according to whether he liked one or all of the items which happened to be measures of that dimension. Consequently, in order to get such scales, we should have to start off with 120 to 150 choice items, even assuming that all would have some significant factor loading on a particular factor.

Anyone familiar with factor analysis will recognize that the task of factorizing 120 or more variables is a tremendous one. Nevertheless, if the foundation for future research which we have envisaged is to be set up, there is no escape from this task and we felt that we could accomplish it by availing ourselves of the latest technical resources in computing and in the design of factor analytic experiments (8). We decided, in fact, to start out with 120 musical variables, but to factorize them in two separate matrices, setting up special joints to dove-tail the two (instead of trying to factorize in one large matrix since $(2n)^2$ is greater than $2n^2$, as illustrated in Section D below). With this general experimental design in mind we shall now describe the variables used in the whole study and the guiding considerations in choosing them.

In any factor analysis attempting to structure an entirely new area, the most important consideration in the choice of variables is that they should be catholic. We need to include musical excerpts likely to appeal to every conceivable type of personality. In seeking such a very representative emotional appeal, we were aided by (a) the insights of our fellows in the Laboratory of Personality Assessment, (b) suggestions from the School of Music, (c) the groupings according to mood in Capurro's study mentioned above (1), (d) a short pioneer study in factorizing musical choices (30) which we found had been done a few years ago by Mrs. P. E. Vernon of London University, though as yet unpublished. A preliminary list of 200 musical excerpts, from different periods, countries, and styles was tried out with about 50 students and was cut down to 120 by eliminating any piece which seemed very similar to any other or which for some peculiar reason of instrument or period was deemed likely to be unreliable. We then arranged for a skilled pianist to record the 120 excerpts on piano, since we wished to eliminate any chance effects which might be due to cultural attachments of the subjects to particular instruments.

The only consideration which gave us real difficulty in this preliminary sorting of excerpts was that concerning the chance familiarity of the subject with the piece in question. There is a general principle in work of this kind, when it is desirable to eliminate as far as possible differences in familiarity with the choices offered, that one should choose items which are either likely to be known by *everyone* or likely to be known by *no one*. On the assumption that we are working for a test which can be used with the average mental hospital patient or with the population generally, we feel safe in assuming a relatively limited knowledge of music and we have accordingly taken it that even a *fairly* uncommon piece of music, as far as the musician is concerned, is likely to be unknown to our general population. On the other hand, in the minority of instances where we have had to assume that the piece of music will be known by everyone, we have chosen something which is extremely common and very likely to be known to all through radio, etc. These criteria resulted in the elimination of many pieces which might otherwise have been suitable.

The only matter remaining to be decided was the length of time that each piece of music should play. Here there are two considerations needing attention. (a) We have to play over 120 pieces to our subjects and in order to get reliability coefficients for the preferences we have in fact to play them all over again on some later occasion. The whole thing must not be so long that it becomes impossible to get subjects to sit through the procedure. (b) The mood of a piece of music may change if it is kept on too long, confusing the subject as to his emotional reaction thereto. On the other hand, it could be so short that the individual would get no definite feeling for it. Preliminary experiments indicated that less than a minute, and, indeed, about 20 seconds, was an optimum period for holding a certain mood and quality of the music. It is gratifying to find that Capurso has independently arrived at a minute or so as a suitable musical period for a definite mood. On this basis we calculated that if we allowed sufficient time between one piece of music and the next for the mood of the first to wear off for the second, and if we allowed sufficient time for the person to record his responses, about two hours would be required for a single run of our proposed series, and this seemed appropriate to Condition (a), for four hours would then be required for each of the subjects.

Particulars of the administration conditions, etc., are given in Table A. The following section is devoted simply to listing the 120 musical excerpts used. They were presented in two different orders to different groups, to attenuate any effects due to position.

TABLE A
LIST OF MUSICAL VARIABLES

1. Bebop, "Tea for Two"	
2. Violin concerto, mov. 2	Mendelssohn
3. Minuetto	Scarlatti
4. Tarrrier's Song (originally sung by Irish quarry workers)	
5. Attack and Death of the Mouse	Copland
6. "I know the Lord's Laid His Hands on Me"	(Negro spiritual)
7. Boogie-Woogie	
8. Ondine	Ravel
9. Tristan and Isolde, Prelude	Wagner
10. Impromptu	Chopin
11. "Little Horse of Mine"	(Lithuanian folk song)
12. Ragtime	
13. Symphonic Rhapsodie	Liszt
14. Scherzo	Chopin
15. Girl with the Flaxen Hair	Debussy
16. "I Feel Like My Time Ain't Long"	(Negro spiritual)
17. Sweet and Low	
18. What the West Wind Saw	Debussy
19. Danza Lucumi	Lecuona
20. Fugue from Prelude and Fugue (5 voice)	Bach
21. Concerto	Liszt
22. India-folk song	
23. Sonata in B flat minor, Op. 35, Marche funebre	Chopin
24. Smoke Gets in Your Eyes	
25. Loves of New Orleans, Dance	Herbert
26. "Jeanie with the Light Brown Hair"	Foster
27. Sonata in D (development section)	Mozart
28. Fugue from Toccata and Fugue in D minor	Bach
29. La Comparsa	Lecuona
30. Toccata	Schumann
31. Classical Symphony, mov. 3	Prokofiev
32. Erinnerung, Op. 63, No. 2	Brahms
33. Hymn, "O Lord My God"	Wesley
34. Paean	Bax
35. Symphony in D minor, Mov. 1	Franck
36. Popular (Cocktail lounge)	
37. Popular (Art Tatum)	
38. The Sea	MacDowell
39. Fourth Concerto, 1st Mov.	Beethoven
40. Stancutza (Rumanian folk song)	
41. Romance	Raff
42. Goodbye, Mr. Czerny	
43. Cowboy	
44. Where Are You Going	Niles
45. Toccata, Toccata and Fugue in d minor	Bach
46. Jazz (slow)	
47. Death and the Maiden	Schubert
48. Toccata	Poulenc
49. Puerta del Vinto	Debussy
50. Romance, Op. 28, No. 2	Schumann
51. Polonaise	Chopin
52. Etude in E major	Chopin
53. Bebop	
54. Farandole (French folk song)	
55. Drei Klavierstücke, Op. 11, No. 1	Schoenberg
56. Nocturne in C sharp minor	Chopin
57. Rhumba	
58. "Thou in Thy Mercy" from Israel in Egypt	Handel
59. O Suzanna	Foster

TABLE A (Continued)

60. Swing	
61. Swing	
62. Trio from Sonata	Haydn
63. Fireworks	Debussy
64. Romantic Symphony, mov. I.	Hanson
65. The Harmonica Player	Guion
66. Mood (Popular)	
67. Joy to the World	Handel
68. "Old Joe Clark" (Square Dance)	
69. Gigue	Scarlatti
70. Varmland (Swedish folk song)	
71. Rhumba	
72. Drink to Me Only With Thine Eyes	
73. Yiddish Lullaby	
74. Bebop	
75. Hungarian Dance	Brahms
76. Boris Goudonov, Coronation Scene	Moussorgsky
77. Hymn, Adagio (Hebrew Melody)	Marcello
78. Sad News	Harris
79. Sunny Side of the Street	
80. Run-run	Pinto
81. Bear Dance	Bartok
82. Last Rose of Summer	
83. Polka ("L'Age D' Or")	
84. Folk Song from India	Shostakovich
85. Sonata, Op. 2, No. 3, 2nd Mov.	
86. Forest Murmurs	Beethoven
87. Fugue, Toccata and Fugue in D minor	Liszt
88. Flying Dutchman, Overture (Senta's Theme)	Bach
89. Symphony VI	Wagner
90. Merry-Go-Round	Tchaikovsky
91. Picture of an Ancient World	Powell
92. Bruyères, Prelude	
93. Fugue	Debussy
94. Soldier's March	Hindemith
95. Overture, Midsummer Night's Dream	Pinto
96. Freiheit (German Battle Song)	Mendelssohn
97. Sonata Op. 57, 1st Mov.	
98. Boogie-Woogie	Beethoven
99. 2nd Sonata, Mov. 3	
100. Largo	Schumann
101. The Ferryman of Lake Okhrida (Macedonian Folk Song)	Bach
102. Witch's Dance	MacDowell
103. What the West Wind Saw	Debussy
104. Sonata 2	Schumann
105. Sonata in D, Exposition	Mozart
106. Epithalamium	Fuleihan
107. Entreating Child	Schumann
108. La Poule	Couperin
109. Water Cresces	Niles
110. Fantasie	Chopin
111. Symphony V, Mov. 2	Tchaikovsky
112. Smuggler's March, Carmen	Bizet
113. Sonata Op. 2, No. 3, Mov. 4	Beethoven
114. Art Tatum Style (Jazz)	
115. Ain't Misbehavin' (Jazz)	
116. Blue Danube Waltz	
117. Stormy Weather	
118. Haul Away, Joe (Sea chanty)	
119. Waltz	Romberg
120. Cowboy Song	

D. THE CONDUCT OF THE EXPERIMENT AND THE STATISTICAL ANALYSIS

The 120 musical excerpts described above were played by Miss Joan Benson of the Music Department, University of Illinois, to a tape recorder, and it was this standard recording which was used throughout all experiments, with the aid of an amplifier. The subjects were taken four to 44 at a time (four and 44 being the extremes) into a testing room and sat comfortably listening to the music with a recording sheet in front of each person upon which the following reactions were recorded immediately after the music.

1. Was your reaction to this music one of liking, disliking or something in between?

2. Have you heard this music before?

3. Did you have any visual imagery on hearing the music?

The instructions to the subject ran:

Please give your immediate reaction to the music you will hear. This is a test of music appreciation, but we do not want you to indicate which is "best" according to generally approved taste; we want you instead to say which you personally enjoy most or least. There are no right or wrong answers previously laid down in this test: it is intended simply to record your purely individual taste.

As each piece is played, underline *L* in the first column of your record sheet if you like it very much and would want it to continue. Underline *D* if you don't like it very much or actually dislike it. Underline the question mark "in-between" if you are undecided, i.e., when the feeling tone is neutral. Use *L* and the question mark and the *D* in such a way that *L* means the third that you like most and *D* about a third that you like least. There should then be about a third of all cases left over in the intermediate category. Five short pieces will be played over before the test actually begins so that you may get some idea of what variety to expect. When they are through you will be told to start putting down your reactions to the test proper. Don't forget to put about a third of *L*'s and a third of *D*'s.

Beyond the columns for the *L*'s, question marks, and *D*'s you will see two more columns. In the first the question is asked: "Do you see imagery?" Check the square following this question only if pictures come to your mind spontaneously. Do not try to see pictures.

The last column asks: "Do you think you have heard this before?" If you think you have, place a check mark in the appropriate square. Don't be disappointed if you recognize only a small percentage of the number used.

We are primarily interested in the *first* question presented. Try not to be influenced by what anyone else is choosing.

It will be noticed that although the above instructions attempted to

produce a normal distribution of responses in terms of like, dislike, and the intermediate neutral response, a precise normal distribution could not be expected.

The tests were given in all to 196 male and female normal subjects, mostly university students and also to 188 abnormal subjects in a mental hospital. In the abnormal group it did not prove possible to retain any of the subjects for the further two hours of retesting and only nine of the normal were retested for reliability, but the coefficients were sufficiently stable to indicate the general degree of re-test reliability in choices of this kind. Tetrachoric correlations on 120 choices ranged from .36 to .75, with a mean at .54 for re-test after 24 hours; from .38 to .58 with a mean at .48 for four people retested after two months, and were .33 and .39 (mean .36) for two people retested after the lapse of a year.

Both the normal and abnormal subjects were also tested on esthetic choices in art and architecture, and on personality tests [The 16 Personality Factor Questionnaire (5)]. The present report, however, occupies itself with the analysis of the musical reactions and with the normal group of 196 adults.

The necessity for using a very catholic array of variables in an opening study for structuring a new realm puts severe demands on the statistical services. So far as we know a matrix of as many as 120 variables has never been correlated and factored. To circumvent the difficulties we have tried an experiment, the success or failure of which may be of interest in itself to statistical researchers. It follows the procedure, advocated on theoretical grounds (8), of splitting the matrix into two equal parts (60 variables in each) factoring one first and then carrying over two marker variables for each rotated factor therein into the second matrix.

The rotations of the second matrix (consisting of variables 61-120, plus the "gusset" of 20 markers) are carried out blindly, like those of the first. If these independent searches for simple structure place the common marker variables in the same patterns of high loadings and hyperplanes one has achieved two advances over the factorization of a single 120 x 120 matrix, viz.: the number of correlations to be calculated is reduced by about a third, and the confidence in the unique correctness of the simple structure is raised. The outcome is discussed below.

In view of our sufficient population the r 's among the musical choices were worked out as tetrachorics rather than as phi divided by phi maximum (8). With this coefficient the best results are obtained if the dividing line between the upper and the lower group is drawn as near the 50 per cent point as possible. Accordingly, before calculating the correlation coefficients,

TABLE 1.
ROTATED FACTOR MATRIX FIRST SET

	1	2	3	4	5	6	7	8	9	h^2
1	.65	.15	-.07	.51	.20	.11	-.01	.28	.16	.67
2	-.01	-.09	.05	.34	.50	.04	-.01	-.10	.18	.47
3	-.38	.05	.03	-.10	.22	-.04	.07	-.05	.20	.28
4	-.24	.09	.09	-.60	-.05	.08	.00	.21	.07	.50
5	.06	-.10	.12	-.06	-.14	.00	-.38	-.03	-.38	.35
6	-.06	-.05	-.12	-.09	.33	.02	.28	-.08	-.04	.36
7	.33	.15	.00	.02	-.04	.34	-.11	.18	-.14	.32
8	-.07	-.39	.43	.10	-.15	-.32	.08	-.03	-.13	.43
9	-.08	.03	-.13	.30	.07	-.36	-.25	-.04	-.04	.42
10	.05	-.05	.00	-.07	.07	.46	-.04	-.43	-.07	.42
11	-.28	-.45	.17	-.03	-.15	.13	.07	-.04	-.18	.46
12	.59	-.06	-.17	.19	-.26	.43	.01	.10	-.27	.68
13	-.42	-.12	.05	.01	.04	-.02	.29	.34	.52	.80
14	-.20	.10	.60	-.10	.05	.08	-.07	.10	.23	.56
15	-.15	-.04	.05	.49	.20	.05	.17	.02	-.07	.42
16	-.11	-.04	-.07	-.10	.36	-.25	.08	-.10	-.24	.33
17	.00	-.29	-.01	-.07	-.02	.16	.12	-.41	.14	.41
18	-.03	-.04	.43	-.06	-.04	-.12	.06	.00	-.44	.55
19	.02	-.12	-.18	-.20	.39	-.15	.00	.16	-.01	.38
20	-.51	-.02	.31	.14	.01	.30	.26	-.04	.02	.80
21	.06	-.02	.55	-.14	-.08	.01	.06	-.06	.44	.56
22	.01	.12	.09	.17	.38	.01	-.10	.15	-.08	.24
23	-.11	-.30	.22	.06	-.17	-.32	.01	.05	-.07	.24
24	-.42	-.32	.02	-.08	-.01	.01	.03	-.11	-.10	.56
25	.05	-.26	-.15	-.41	.06	.12	.04	-.06	.06	.40
26	.03	-.39	.13	-.34	-.07	.04	.17	-.21	.15	.40
27	-.12	-.23	.37	.28	.07	-.24	.31	-.04	.16	.38
28	-.35	-.13	.37	-.05	-.11	.00	.18	.11	-.13	.31
29	.03	.41	.10	-.01	.53	-.12	.01	.05	-.01	.50
30	.03	-.09	.67	.24	.08	.09	.28	-.08	.08	.54
31	-.11	-.07	.00	-.03	-.02	.08	.16	.11	.03	.11
32	.14	-.42	-.25	.06	-.07	.09	-.07	-.36	.19	.55
33	-.25	-.34	.02	.26	-.01	.03	-.01	-.01	-.09	.42
34	-.04	.25	.22	.06	.33	-.10	-.01	.25	-.36	.55
35	-.22	.15	.11	.14	.31	.02	.09	-.34	-.01	.36
36	.40	-.56	.08	-.09	.09	-.14	-.03	.00	-.10	.63
37	.67	-.24	.09	.03	-.05	.33	.04	.28	.11	.70
38	.00	-.10	.55	.12	.00	.09	-.13	-.05	-.21	.45
39	-.32	-.06	.03	.01	.04	.25	.04	-.15	-.03	.33
40	-.04	.06	.15	.12	.13	-.09	-.05	.05	-.38	.35
41	.05	-.25	.00	.21	.31	.09	.13	-.33	-.07	.45
42	-.11	.10	-.01	.07	.02	-.03	.10	.16	-.11	.07
43	.01	-.06	-.14	-.05	-.28	.42	.13	.11	-.05	.48
44	-.08	.07	.03	.10	.29	.27	-.13	-.32	-.12	.33
45	.06	.04	.26	-.07	.01	.07	-.37	-.02	.09	.33
46	-.09	-.53	.14	-.32	.04	.13	-.30	.07	-.09	.48
47	-.24	-.24	.06	-.08	.05	.03	-.49	-.04	-.02	.43
48	.09	.34	.06	.05	-.03	.01	.27	-.12	-.22	.35
49	-.07	.04	.15	-.18	.09	.24	-.45	.13	-.28	.43
50	-.06	-.27	.03	.35	-.09	.05	.30	-.28	.21	.58
51	-.09	-.04	-.01	.11	.07	.09	-.32	-.02	-.10	.17
52	.04	-.13	.00	-.02	.15	.02	-.08	-.46	-.03	.27
53	.42	.11	.03	.29	-.01	.14	.30	.59	.10	.57

TABLE 1 (Continued)

	1	2	3	4	5	6	7	8	9	h^2
54	—21	—09	—03	—24	06	03	30	13	—09	.33
55	—09	05	—04	—06	07	25	—53	—07	06	.40
56	00	04	44	16	06	—10	—10	—02	—14	.40
57	11	—05	—02	06	27	—17	05	19	—17	.25
58	—06	06	—01	17	—04	41	—21	—08	13	.37
59	07	—34	—05	—24	14	07	04	—19	04	.32
60	61	—09	—01	01	—05	58	05	02	—07	.66
121	08	—07	28	—14	52	12	—04	26	—06	.58
122	—08	—19	30	06	20	—01	—14	05	06	.23
Number in ± 10 Hyperplane.	34	32	33	33	36	33	34	32	32	

we examined the distributions and always threw the middle or neutral group of responses along with that end of the distribution which was the smaller one. Thus, in some cases, the positive section of the score is like-plus-neutral as opposed to dislike, whereas in others it is like as opposed to neutral-plus-dislike. Extraction was carried out by the multiple group method, stopped in the 60 x 60 matrix at nine factors and in the 80 x 80 at 11, according to the usual statistical tests (8).

A strikingly clear simple structure—better than that commonly obtainable either from questionnaires or ratings and at least equal to that of objective tests—was obtained after 20 overall rotations of the first matrix and 21 of the second. A very slight change was then made in one or two factors in the light of the common trends in them in the two matrices. For on inspection it was found that the loading patterns of the common variables were well matched in most of the factors, permitting eight out of nine of the first matrix at once to be matched with members of the second.

The first and second rotated matrices (reference vectors, not yet transformed to factors) are set out in Table 1 and 2, the marker variables retaining the same numbers in the second as the first. The correlation matrices, unrotated factor matrices and transformation matrices may be obtained from the American Documentation Institute, on microfilm for \$1.00 or 6 x 8 photocopies for \$2.25, by ordering Document 3418. The $\lambda'\lambda$ matrices, showing the angles of the reference vectors, are given in Table 3a and 3b.

E. THE NATURE OF THE FACTORS

Our purpose here is to set out the matches in terms of the common, marker variables. The non-common variables will not be listed, except in those factors from the second matrix which have no match and which are there-

TABLE 2
ROTATED FACTOR MATRIX, SECOND SET

	1	2	3	4	5	6	7	8	9	10	11	h^2
61	.58	-.04	-.09	-.10	-.05	-.08	.03	-.08	.08	.07	-.14	.58
62	-.10	.02	.06	.18	-.07	-.14	.03	.36	.25	.47	.07	.45
63	.10	.42	-.08	.11	.04	-.11	-.06	-.13	.10	.09	-.37	.44
64	-.18	.02	.05	.10	.01	-.03	-.33	-.41	-.13	-.21	.36	.46
65	.05	-.07	-.41	-.22	-.29	.05	.02	.03	-.05	-.22	-.13	.45
66	.10	.04	.20	.07	.13	-.25	-.06	.17	-.02	-.03	-.34	.29
67	.14	.05	.15	-.05	-.26	.10	-.38	.06	-.10	.14	-.13	.40
68	-.07	.01	-.39	-.33	.19	.13	.10	-.23	-.43	.16	-.10	.50
69	-.15	.04	.23	-.50	.04	-.05	.36	.09	.12	.01	-.32	.56
70	-.40	-.19	-.30	-.11	.01	.05	.02	.31	.00	.15	.08	.50
71	.49	-.06	.01	-.16	.11	-.13	-.40	-.25	.04	-.24	-.13	.64
72	.00	.04	.34	.11	-.29	.08	-.51	-.02	-.04	.08	.19	.61
73	-.26	.03	.01	-.25	.04	-.42	-.08	-.20	-.05	-.01	.13	.52
74	.49	.08	.28	-.15	.29	.05	.00	-.16	.38	-.16	.10	.61
75	-.07	-.03	.05	-.37	.09	.19	.04	.14	.08	.06	-.50	.47
76	-.17	.45	-.16	.21	.01	.19	.04	.08	-.01	-.13	-.01	.60
77	-.31	-.09	.03	-.25	-.09	-.36	.05	.00	-.09	-.03	.01	.44
78	-.04	.00	.07	.06	-.07	-.29	-.09	.40	.04	.12	.07	.38
79	.66	-.20	.18	-.03	.31	-.03	.06	.01	.42	-.02	-.08	.67
80	.03	.12	.18	.16	-.35	-.15	-.07	-.02	.00	-.11	-.10	.23
81	.16	.00	-.17	-.05	.04	-.10	-.03	-.07	-.20	-.11	.06	.14
82	.01	-.27	-.06	.14	-.15	.07	-.55	.29	-.03	-.18	.06	.64
83	-.07	.31	-.08	-.18	-.14	.52	.22	.01	.01	-.05	.03	.48
84	.01	.16	-.12	.00	.15	-.13	-.07	.38	.05	.27	-.22	.40
85	-.28	-.31	.29	.00	-.07	-.18	-.14	.24	-.17	.11	-.24	.60
86	-.06	.01	.08	.08	-.09	-.16	.03	.03	.40	-.14	.00	.32
87	-.25	.15	.15	-.05	-.04	-.10	.03	.15	-.09	.54	-.13	.49
88	.01	.45	-.03	.04	.32	-.01	.11	.01	.05	.16	-.11	.49
89	-.22	.17	-.08	.29	.07	-.21	-.02	.00	-.08	.21	-.03	.35
90	.18	.10	-.20	-.65	.29	.05	.04	-.36	-.10	.02	.08	.60
91	.00	-.28	.16	-.12	.43	-.04	-.01	.10	.32	-.06	.01	.42
92	-.08	-.10	.03	.02	.08	-.18	-.10	.01	-.24	-.04	.29	.26
93	.00	.18	-.07	-.11	-.08	-.10	.11	.03	-.08	.12	-.26	.14
94	-.03	-.06	-.16	-.44	.04	.28	.15	-.09	-.41	-.09	.02	.48
95	.08	.28	.08	.00	-.25	-.09	.20	-.09	.26	.16	-.18	.42
96	-.14	.06	-.18	-.19	.05	-.04	-.28	-.11	-.63	.15	-.14	.62
97	-.08	-.03	.43	.02	.14	.02	-.02	.09	.36	.07	.10	.41
98	.74	.11	-.06	.07	.00	.13	-.12	.11	.24	.10	.00	.68
99	-.07	.30	-.02	.04	-.21	.05	.06	.07	.01	-.04	-.19	.24
100	-.33	.11	.16	-.07	.11	-.13	.08	.14	-.12	.06	-.07	.28
101	-.18	.00	-.07	-.06	.26	-.27	-.02	.15	.02	.10	-.23	.28
102	.00	.72	.00	.03	-.04	.06	-.37	-.21	-.01	.02	.07	.63
103	-.09	.36	-.17	.03	-.01	-.18	-.09	-.04	-.02	-.07	-.32	.35
104	-.26	-.19	.16	-.08	-.07	-.07	-.06	.33	-.21	-.18	-.10	.44
105	-.10	-.03	-.10	.04	-.56	-.01	.09	.33	.02	.10	-.09	.46
106	.05	.02	-.01	.00	.02	.02	-.10	.15	.00	-.01	.19	.15
107	-.28	-.10	-.03	.04	-.08	.19	.03	.09	-.13	-.10	.07	.13
108	.09	.29	.16	-.11	.42	-.08	.11	.00	-.02	.44	-.22	.46
109	-.03	-.23	-.18	.00	.13	-.03	-.38	.11	.03	-.42	-.04	.52
110	.02	.51	.08	-.05	.22	-.03	-.06	-.22	.13	-.02	.05	.48
111	.09	-.01	.40	.23	.11	.38	-.41	.02	.07	-.10	.16	.68
112	-.19	.12	-.07	-.08	.01	-.06	-.06	-.06	.06	.00	-.23	.16
113	-.10	.23	.05	-.03	-.41	.03	.07	.02	-.04	.17	-.15	.30

TABLE 2 (Continued)

	1	2	3	4	5	6	7	8	9	10	11	h^2
114	68	09	-25	-09	-06	-06	-07	23	06	11	00	.70
115	47	-07	58	-03	04	-03	-14	00	09	-47	09	.94
116	03	03	02	-04	-05	-01	-57	-11	05	-21	-27	.59
117	45	07	44	-15	15	16	-08	13	09	-14	06	.69
118	-23	07	-14	-09	00	04	-37	43	-04	07	03	.58
119	-07	07	-09	-23	01	-03	-42	02	-02	-11	-03	.36
120	-10	01	-04	-01	10	-23	-21	16	-04	13	-37	.31
1	43	-02	32	00	04	05	30	-03	29	-04	-12	.49
2	-01	01	41	-02	06	01	-13	01	15	36	-10	.38
4	00	10	-51	-04	11	-03	-22	-05	03	04	-11	.39
10	03	-05	-09	-16	-36	-33	-15	00	-25	-03	30	.60
12	54	-07	-02	06	-08	-07	03	-27	-13	-02	13	.62
13	-17	-05	-06	11	-32	00	-19	26	22	16	-18	.41
14	00	48	-18	00	-03	-14	-08	07	14	32	-04	.44
15	-05	05	07	09	-25	14	-04	08	02	32	14	.24
18	08	56	-03	-09	21	05	-14	-32	-22	-05	06	.49
29	-02	22	-16	-49	57	-03	16	-04	-04	15	10	.61
30	09	39	12	-01	08	06	-06	-02	-04	48	05	.36
31	-17	-09	02	-20	-14	06	07	12	-28	16	-35	.34
36	43	16	15	-12	-03	-12	-28	-19	02	-33	02	.46
37	83	-12	07	24	-04	-20	-16	06	34	-04	-01	.79
42	09	25	-23	02	-20	17	03	19	07	12	-08	.26
46	28	14	13	00	01	-44	-45	-04	03	09	-21	.46
47	-06	01	-08	28	01	-37	-10	12	10	07	04	.31
53	47	01	05	-02	08	-04	40	20	12	22	-45	.76
55	02	12	-09	27	-02	-54	04	06	16	04	-06	.52
60	70	-22	05	11	-17	03	-10	02	18	01	06	.72
Number in ± 10 Hyperplane.	45	44	41	45	45	44	45	42	48	38	41	

fore best identified by the highest variables, marker or non-marker. The factors from the second set are marked by primes. The reader may check his own hypotheses about the nature of these factors by drawing in, from Tables 1 and 2, the remaining high non-common variables.

The five highest variables in the first rotation in Table 4 are identical with those in the second and the order is almost identical, so the match is excellent. The general sense of the musical choices is that of popular, jazz-like structure, with rhythmical emphasis, fast tempo, individual interpretation, discordant harmonies, generally with a joyful but agitated mood. One might speculate that this will be associated with the surgent personality factor in later studies.

Again, from a factor analytic point of view the agreement of the markers in the independent rotations is excellent (Table 5). Here we can generalize an attachment to classical music, of a sentimental, introspective but cheerful

TABLE 3 (a)

	1	2	3	4	5	6	7	8
1								
2	-.08							
3	-.10	-.23						
4	.26	.14	.02					
5	-.02	.27	-.03	.16				
6	.34	.12	.04	.06	.00			
7	-.12	.16	.23	.13	.06	-.23		
8	-.05	.15	.03	.12	.08	-.10	.08	
9	.14	.09	.11	.08	.11	-.07	.20	.18

TABLE 3 (b)

	1	2	3	4	5	6	7	8	9	10
1										
2	.07									
3	.15	-.16								
4	.10	-.15	.15							
5	.05	-.04	.02	-.30						
6	-.22	.03	-.10	.01	-.12					
7	-.28	-.32	.09	-.14	.07	.08				
8	.06	-.24	.07	.24	-.13	.06	.05			
9	.39	-.16	.30	.25	.01	-.02	-.02	.26		
10	.07	.25	.08	.01	.12	.00	.01	.22	.04	
11	.06	-.05	-.10	.16	-.04	.15	-.17	-.23	-.05	-.17

TABLE 4
FACTOR 1

Variable number	(F ₁ in Set 1 and F ₁ ' in Set 2)		Title
	Loading in F ₁	F ₁ '	
37	.67	.83	Likes Art Tatum (Popular)
1	.65	.43	Likes Bebop, "Tea for Two"
12	.59	.54	Likes Ragtime
53	.42	.47	Likes Bebop
36	.40	.43	Likes Cocktail Lounge (Popular)

TABLE 5
FACTOR 2

Variable number	(F ₂ in Set 1; F ₂ ' in Set 2)		Title
	Loading in F ₂	F ₂ '	
14	.60	.48	Likes Scherzo—Chopin
30	.67	.59	Likes Toccata—Schumann
18	.43	.56	Likes What the West Wind Saw—Debussy
46	.14	.14	Likes Jazz 2 (slow)

nature, with a tendency to color harmonies. A possible hypothesis is that this fits the I factor of personality (7). Consistent with this is the tendency for imagery and past familiarity to be involved (Variables 120 and 121).

TABLE 6
FACTOR 3

Variable number	Loading in		Title
	F_1	F_1'	
4	-.60	-.51	Dislikes Tarrier's Song
1	.51	.32	Likes Bebop, "Tea for Two"
15	.49	.07	Likes Girl With the Flaxen Hair—Debussy
2	.34	.41	Likes Violin Concerto, Mov. 2—Mendelssohn

A slight discrepancy in loading exists here (Table 6) for Variable 15, but the total pattern (order and sign) is exactly the same, and there is little doubt of a sound match. From the associated variables (several higher than the common ones set out above) in the first and second sets (see Tables 1 and 2) one can perceive a quality of warmth and gentleness, such as might be expected to appeal to the cyclothyme Factor A or H.

TABLE 7
FACTOR 4

Variable number	Loading in		Title
	F_2	F_7'	
46	-.53	-.45	Dislikes Jazz 2 (Slow)
36	-.56	-.28	Dislikes Cocktail Lounge (Popular)
29	.41	.16	Likes La Comparsa (Lecuona)
37	-.24	-.16	Dislikes Art Tatum (Popular)
47	-.24	-.10	Dislikes Death and the Maiden—Schubert

The match here (Table 7) is not quite so good as previously, in terms of absolute loadings, but the markers from F_2 are the highest common variables in F_7' and the rank order and signs are the same, constituting a coincidence beyond the 1 per cent level of chance (8).

The musical quality is more subtle here and one senses more dislikes than likes. It is in fact striking that some factors, notably this and 11, are characterized by a great preponderance, in all the high loadings, of dislikes over

likes. Only further research can explore the meaning of this, but one may suspect Factor M of the questionnaire studies (4).

TABLE 8
FACTOR 5

Variable number	Loading in		Title
	F_1	F_2	
(F ₁ in Set 1; F ₂ in Set 2)			
55	—53	—54	'Dislikes Drei Klavierstücke, Op. 11, No. 1— Schoenberg
47	—49	—37	Dislikes Death and the Maiden—Schubert
46	—30	—44	Dislikes Jazz (Slow)
42	.10	.17	Likes Goodbye Mr. Czerny

It will be noted that here (Table 8) and elsewhere some of the same markers occur as in other factors—since we restricted ourselves to few markers for several factors—but the pattern of loadings is different and the agreement of the two rotations is again excellent. The sense of the factor is one of conventionalism and conservatism.

TABLE 9
FACTOR 6

Variable number	Loading in		Title
	F_2	F_3	
(F ₂ in Set 1; F ₃ in Set 2)			
18	—44	—32	Dislikes What the West Wind Saw—Debussy
13	.52	.26	Likes Symphonic Rhapsodie—Liszt
12	—27	—27	Dislikes Ragtime
36	—10	—19	Dislikes Cocktail Lounge (Popular)

The rotation pattern is well matched though the loadings are not high (Table 9). The high scoring person likes lush, romantic, fairly conventional harmonies, with a flourish!

TABLE 10
FACTOR 7

Variable number	Loading in		Title
	F ₂	F ₃	
(F ₂ in Set 1; F ₃ in Set 2)			
53	.59	.12	Likes Bebop
10	-.43	-.25	Dislikes Impromptu—Chopin
13	.34	.22	Likes Symphonic Rhapsodie—Liszt
37	.28	.34	Likes Art Tatum (Popular)
1	.28	.29	Likes Bebop, "Tea for Two"

The loading pattern begins to get low in these later factors (Table 10) but the pattern is preserved. In the loadings outside the common markers one finds dislike of "Sweet and Low" (17) of "Freiheit" (96). There may be some dislike of more emotional music, suggesting possibly Q_2 in the questionnaire factors (5).

TABLE 11

FACTOR 8

Variable number	Loading in		Title
	F_8	F_{10}'	
2	.50	.36	Likes Violin Concerto, Mov. 2—Mendelssohn
15	.20	.32	Likes Girl with Flaxen Hair—Debussy
29	.53	.15	Likes La Comparsa—Lecuona

Again the loadings are getting too low for recognition of factor nature from the markers (Table 11), though the matching by pattern is beyond 5 per cent chance. From the non-common variables, more highly loaded than the above, e.g., 87, 62, 109, one gets an expression of classic elegance. Individuals high in this factor have the highest tendency ($r = .50$) to see imagery while listening to music (Variable 121).

TABLE 12

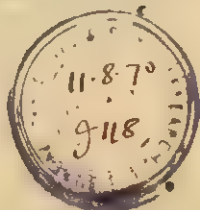
FACTOR 9

Variable number	Loading in		Title
	F_9	F_4'	
37	.33	.24	Likes Art Tatum (Popular)
55	.25	.27	Likes La Comparsa—Lecuona
29	-.12	-.49	Dislikes Drei Klavierstücke—Schonberg
60	.58	.11	Likes Swing

In this factor (Table 12) the matchings of the marker variable loading patterns are the poorest obtained, though we believe it still to be satisfactory. No speculation on the common musical character is possible without resort to the higher loadings in 90, 43 and 58.

This factor (Table 13), found only in the second set of excerpts, will be confirmed by further study before investigating its associations.

Again (Table 14), the pattern is in only one set, though the loadings here



are well above 1 per cent chance level. The hyperplane is adequate but not high, and the factor may be considered statistically clear even if not musically interpretable.

TABLE 13

FACTOR 10

Variable number	(F ₁₀ ' in Second Set)	
	Loading in F ₁₀ '	Title
29	.57	Likes La Comparsa—Lecuona
105	— .56	Dislikes Sonata in D Exposition—Mozart
91	.43	Likes Picture of an Ancient World
113	— .41	Dislikes Sonata Op. 2, No. 3—Beethoven

TABLE 14

FACTOR 11

Variable number	(F ₁₁ ' in Set 2)	
	Loading in F ₁₁ '	Title
75	— .50	Dislikes Hungarian Dance—Brahms
63	— .37	Dislikes Fireworks—Debussy
120	— .37	Dislikes Cowboy Song
64	.36	Likes Romantic Symphony, Mov. 1—Hanson

F. SUMMARY

Factorization of like and dislike reactions to 120 musical excerpts by a population of 196 "normal" men and women in early maturity has yielded 12 factors, eight of which are confirmed by two independent rotations of the material, one more moderately confirmed, and three awaiting further research.

Although the definition and soundness of simple structure for these factors is of a high order, little attempt has been made here to infer their nature from the particular association of musical likes and dislikes connected with them, though in some cases "hunches" indicated by the data are mentioned. Our general hypothesis that these independent dimensions of choice will turn out to be personality and temperament factors rather than patterns of specific musical content or school seems sufficiently sustained.

Research leading to more extensive interpretation of the psychological meaning of the factors should be possible now that I.P.A.T. has made the above excerpts available on a single, 12 ins. long-playing record (11). Our own interpretations will wait on our use of this instrument in research

directed to relating these factors to measured personality factors and pathological syndromes.²

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A DETERMINATION OF PSYCHOSOMATIC FUNCTIONAL UNITIES IN PERSONALITY BY MEANS OF P-TECHNIQUE*

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A. THE SCIENTIFIC RÔLE OF P-TECHNIQUE

The special development of factor analysis known as P-technique, introduced by Cattell (2, 3), has already begun to issue in a harvest of results which demonstrated it to be a very potent method in psychological research. The first half dozen studies have been planned strategically to explore its utilities over many types of cases and to bring out certain general principles by relations among the different studies. Thus the first study was on a normal individual (6), the second on a clinical case (8), to demonstrate the clinical utility of the method, while another (7) has been upon dynamic traits chosen in relation to dynamic patterns already revealed by an ordinary R-technique factorization. Finally, the present study explicitly sets out to show that P-technique is especially valuable in determining psychosomatic connections, with a degree of precision not possible by any other method.

The novelty of P-technique is that it consists in a factorization within the universe of a single individual. There is one other system of factorization, O-technique, which also operates within the single individual and which has special value for analysis of multiple personality, but is otherwise less widely applicable than P-technique. O-technique, incidentally, is the transpose of P-technique, just as Q-technique is the transpose of R-technique, and consequently can be used under certain conditions as an alternative avenue to the same results (3). P-technique, it will be recalled, precedes by measuring a single individual at intervals (usually daily) on the same battery of physiological or psychological tests, and measures and ratings from occasion to occasion, thus constituting a correlatable series for the measurements. The earlier studies have confirmed that the day to day variations which constitute the material of the factorization are large enough to produce a significant correlation and that they are true function fluctuation changes, not merely the changes due to experimental error of measurement. Further-

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more, it has been shown that the factors thus obtained bear considerable resemblance to those obtained by R-technique from the same variables. Indeed, it is argued—and the initial studies point the way—that the patterns for source traits found by P-technique on different individuals will cluster around the patterns found by R-technique (6, 8). That is to say, common traits seem to be the average of the patterns of unique traits.

The fact that P-technique yields unique traits, constitutes its peculiar value for clinical psychology. It shows the particular connections of a certain symptom or trait with specific historical manifestations within that individual in a way that is not possible with R-technique. In so doing it loses the capacity to deal with the same scale units as R-technique, or to make immediate comparison between one person and another. In most clinical work, psychological or medical, this is more than compensated for, however, by the positive evidence which it gives about the rôle of generally known processes in producing the particular symptoms of that given patient. For while it is true that in general the medical man and the psychologist assume that each patient is subject to the same psychological and physiological laws as any other and that common processes can be depended upon to act in accordance with common nature, nevertheless, the connection of particular symptoms or manifestations is very frequently unique and requires a regard for uniqueness of pattern, peculiar to the concept of the unique traits as developed by P-technique, and distinct from the uniqueness of combination of common traits which is all that is given by R-technique.

The rôle of P-technique, in scientific psychology, is therefore first, to give the practicing psychologist a more reliable structuring than he can obtain by any other method of the action of the general processes uniquely within the given individual, and, second, in scientific investigation generally, to throw light on general structures, just as R-technique does, but by a collation of separate individual studies accumulated through P-technique experiments.

B. THE DESIGN OF THE EXPERIMENT

The subject for this P-technique study was a "normal" 23-year-old man who was a graduate student at the University. Data gathered covered both physiological and psychological tests. Daily ratings of the subject's behavior were made by the subject himself and by two observers. The 52 objective test variables (which, of course, do not include 18 daily ratings by the subject and 13 ratings by the observers) measured each day for a total of 110 days, appear in Table 1. In the left Column (a) of Table 1 are the numbers by which the variables are indicated in the factor analysis. In Column

(b) of Table 1, the numbers refer to the order in which the tests were presented daily to the subject. The sessions were held at times scattered over the day from 7 A.M. to 10 P.M. in order to establish the pattern of fatigue. The description of the procedure is omitted here but is fully described in (24).

No non-linear relationship appeared among any of the variables in Table 1, and these 52 variables were intercorrelated by the product-moment formula. The correlation matrix showed a wide range of values, both positive and negative, and was factorized using Thurstone's multiple group centroid method. Since the communalities of the resulting 13 factors were considerably larger than unity on those tests on which there was not complete data,¹ i.e., were not given every day in the 110-day interval, it seemed apparent that the communalities could not be estimated correctly for the first factor analysis. Therefore, the data were factor analyzed three times. It then appeared that no further factoring was necessary as the loadings had changed very little after the second factor analysis. The 13 factors were then rotated until simple structure was obtained which required 11 rotations.

Since the reliability coefficients for the 13 ratings of the subject made by the two observers were adequate, ranging from .322 to .849 with a median of .675, the rating scores were combined. The correlation coefficients between some of the ratings made by the observers and the ratings made by the subject were large enough to warrant a combination of some of these scores also. After all the scores were thus combined, there were 19 rating scores. These rating scores were then correlated, using the product-moment formula, with the daily estimate of each of the 13 factors found to be present in the 52 daily tests which had been given. It should be noted, therefore, that since the ratings² are correlated with the factors but were not themselves in the factor analysis, all conclusions will be tentative at this point.

C. DESCRIPTION OF THE FACTORS FOUND

In this section we shall describe each of the 13 factors found by listing the highest significantly loaded variables in each, i.e., variables usually with a loading of .30 or more. Below these will be listed the psychological rating variables which were found to correlate with the factor in question. It will be realized that in the interpretation of factors one must consider not only the variables which are high in the given factor, but also other factors in

¹For example, calcium and glucose content of the blood serum.

²The questions rated by the subject are those listed in (6). The 13 ratings made by the observers can be obtained from the author. Each rating was made as a measure of one of the 13 factors found by Cattell (3) in his previous R-technique.

TABLE 1
CLASSIFIED LIST OF VARIABLES

Coded as in Factor Analysis (a)	Numbered as in order of presentation (b)	
<i>Physiological: Biochemical</i>		
E6	17	pH of saliva
A7	18	pH of urine
D4	38	Red corpuscle count (absolute)
B2	39	White corpuscle count (absolute)
C3	40	Lymphocytes (percentage)
C4	41	Monocytes (percentage)
C5	42	Polymorphonuclear Neutrophils (percentage)
F4	43	Eosinophils (percentage)
F7	44	Basophils (percentage)
A3	45	Stab nuclears (percentage)
C1	46	Calcium content of blood serum (Clark-Collip method)
C2	47	Glucose content of the blood serum (Folin and Wu method)
G3	48	Cholinesterase (.2 ml. of blood serum) (Alles and Hawes method)
G1	49	17-ketosteroids (method of Harvard Medical School, Dept. of Pediatrics)
<i>Physiological: Total organism</i>		
D1	12	Dark-adaptation (length of time after standard exposure to light)
B6	13	Blood pressure (average of diastolic and systolic)
B7	14	Pulse pressure
D2	15	Heart rate
B8	16	Predicted Basal Metabolism Rate (Gates formula)
C6	19	Ratio of pupil of eye to iris
D6	21	Amount of salivation; secretion in two minutes
D3	25	PGR initial resistance (absolute) of skin
A2	26	PGR frequency of spontaneous deflections under standard conditions
A8	27	PGR mean magnitude of deflection to stimuli (per cent fall)
B5	28	PGR magnitude of upward drift in relaxing after shock
F5	32	Frequency of urination
F8	33	Frequency of defecation
G4	50	Volume of urine per day
G2	51	Specific gravity of urine
F3	37	Hours of sleep previous night
<i>Psychological: Objective measurement</i>		
C8	22	Reaction time to light; mean of 20 reactions with regular and irregular warnings
A6	23	Reaction time ratio; time for 10 regular warnings divided by time for 10 irregular warnings
D5	31	Endurance of electric shock; magnitude voluntarily endured
F2	34	Number of cigarettes smoked
B3	36	Number of hours after waking
C7	1	Flicker fusion. Mean of 10 trials going from flicker to non-flicker and vice versa

TABLE 1 (continued)

Coded as in Factor Analysis (a)	Numbered as in order of presentation (b)	
A5	2	Flicker fusion. Mean of scores going from non-flicker to flicker minus mean of scores going from flicker to non-flicker
D7	3	Fluency of association, verbal. Sentence completion and T.A.T.
D8	4	Fluency of association, drawing
A1	5	Perseveration (disposition rigidity) by motor test
E2	6	Reversible perspective speed
E4	7	Suggestibility (sway test)
E5	8	Ataxic sway suggestibility (total amount of sway regardless of direction)
E1	9	Total number of figures added in two minutes
B1	10	Dynamic momentum. No. of figures added first minute divided by number added in second minute
E3	11	Tempo (one minute)
E7	20	Conscientiousness over detail (counting hidden numbers while being distracted by experimenter reading poetry and giving electric shock)
E8	24	Upset of work by distraction (counting hidden numbers while cymbals were clashed)
F1	29	Number of words remembered from a word list. Deliberate memorizing
A4	30	Ratio of emotional to unemotional words remembered
B4	52	Serial number of the session
<i>Rating included in factor analysis</i>		
F6	35	Subject's self-rating on degree of stuttering (range from 1-4)

which those variables appear. The whole problem of factor interpretation depends upon a nice appreciation of relativity. Variables which happen to have a low reliability will not have loadings as high as they should have. Again, before presuming that a particular variable is characteristic of a certain factor, we need to look at other factors and see whether it also has a high loading in some other. For lack of space, all the reasoning that has gone into the interpretations cannot be set out here and must be left for further discussion. Naturally an attempt was not made to interpret all the factors since it is necessary for other studies of this kind to be collated with it in order to make "identifications" possible by reason of comparisons with other data. To help in interpretation we have added along side the fact of loading the reliability of certain measures where they are known. Naturally not all reliabilities could be determined.

TABLE 2
FACTORS (REFERENCE VECTORS) IN THE ROTATED, SIMPLE STRUCTURE

Code number of variable	1	2	3	4	5	6	7	8	9	10	11	12	13	h^2
A1	.06	-.37	.00	-.10	.23	-.06	.00	-.23	-.05	.76	-.27	-.13	.07	1.1178
B1	-.06	.08	.17	-.01	-.05	.00	-.13	-.13	-.10	-.16	-.01	-.12	-.13	.147
C1	.03	-.02	.71	.27	.07	-.09	.52	-.18	-.06	-.15	.08	.09	-.04	1.246
D1	.02	-.08	-.05	.02	-.07	-.53	-.04	.02	-.56	.06	-.09	-.17	-.19	.901
E1	.67	-.03	-.17	.03	-.08	.08	.04	-.02	-.01	-.07	.05	.06	-.04	.838
F1	.08	.64	.01	.05	.03	-.03	-.28	.07	-.53	-.04	.02	.09	-.34	1.202
G1	-.84	.87	.17	.00	-.10	.09	-.15	-.14	.07	-.11	.01	.08	.11	1.489
A2	.07	-.08	.05	.00	-.06	.07	-.02	-.01	.02	.10	.40	.06	-.04	.222
B2	-.09	.09	-.09	.32	.00	-.02	-.27	-.04	-.04	.22	.04	-.03	.24	.364
C2	.08	.01	-.31	.03	.02	.44	.61	-.04	.01	.30	-.08	.09	-.08	1.239
D2	-.23	.29	-.26	-.01	.04	-.29	.03	.07	-.06	-.09	.06	.04	-.23	.454
E2	.59	.05	.11	-.07	-.19	.08	.14	.17	-.04	-.25	-.06	.06	.00	.893
F2	.07	-.03	.02	.68	.03	.01	.02	-.09	.26	.02	.03	.05	.56	1.109
G2	-.09	-.06	.01	-.01	-.04	.10	.04	-.38	.01	.07	-.10	.81	-.52	1.303
A3	.02	.02	.04	.15	.30	-.09	.14	-.16	-.18	.08	-.48	.37	-.04	.344
B3	.08	.07	.09	.73	.17	-.08	-.22	-.10	.04	-.05	.13	.27	.03	.952
C3	.29	-.14	.39	.19	-.04	-.04	.44	.00	-.23	-.05	-.08	-.02	-.17	.716
D3	-.23	.03	.01	-.07	.25	.39	.20	.50	.34	-.01	-.23	-.10	.22	.788
E3	.62	.09	-.07	.04	-.05	.07	.06	.03	-.17	-.01	.05	.03	-.11	.904
F3	.06	-.03	.03	-.07	.04	.12	-.06	.02	.07	.15	-.09	.17	.04	.106
G3	.27	.67	.09	.00	.78	-.60	.24	-.06	.11	.23	.17	-.23	-.10	1.360
A4	-.03	.00	.28	.03	-.37	.02	.01	.53	-.04	-.86	.02	-.07	.02	1.074
B4	.08	-.08	-.52	.16	.19	.39	-.04	-.02	.34	-.01	.30	.25	-.02	1.099
C4	.29	-.10	-.09	.00	.06	-.06	-.26	.10	.03	.05	.03	.10	-.15	.224
D4	-.44	.19	-.25	.09	-.22	.12	.09	-.31	-.12	.16	.53	-.08	-.03	.794
E4	.51	.15	.01	.02	-.13	.07	-.02	.07	-.26	-.06	-.16	.06	-.27	.909
F4	-.08	.07	-.31	.44	.00	-.06	.04	.04	-.20	.08	-.13	.33	-.43	.573
G4	-.18	.08	.31	-.04	-.26	.46	.22	.18	.01	-.30	.52	-.01	-.06	.668

^aSince some of the factors are correlated after rotation, these are communalities of the factors before rotation.

TABLE 2 (continued)

Code number of variable	Factor number																b ²
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
A5	-.07	.36	.45	.01	-.27	-.47	-.66	.08	-.25	-.05	-.05	.33	.03				1.130
B5	-.02	.08	-.04	-.01	.05	.43	.12	.20	.01	.07	.08	.02	-.07				.397
C5	-.33	.28	-.25	-.30	-.08	-.08	-.60	.04	-.01	-.04	-.10	-.40	-.10				.932
D5	-.05	.04	-.02	-.10	-.07	-.23	-.23	-.45	-.01	-.02	.63	.06	-.10				.353
E5	.39	.09	-.23	.15	-.08	.17	.06	.06	.08	-.01	.03	-.08	-.07				.595
F5	-.02	.10	-.06	.62	.04	-.06	-.04	-.04	-.05	-.10	.13	.10	.09				.730
A6	-.07	-.03	.10	.09	-.02	.25	-.10	-.19	-.04	.02	.02	.01	-.21				.239
B6	-.23	.13	-.55	.21	.22	.00	-.02	-.07	.00	-.05	.00	.27	.08				.382
C6	-.08	-.10	.04	.31	-.25	-.01	-.02	.05	-.10	.05	-.10	.07	-.05				1.202
D6	.04	.22	.02	.05	.01	-.02	-.05	.04	-.10	.06	.04	.09	-.08				.155
E6	.29	-.37	.10	.09	-.42	.03	-.22	.07	.80	-.06	.04	.20	.21				1.033
F6	.03	.10	-.03	.02	.01	-.08	.51	.10	-.07	.09	.16	-.20	.08				.875
A7	.02	.16	-.08	.21	.32	-.06	-.02	-.10	.19	.05	.12	.16	.11				.392
B7	.14	-.32	.37	.05	-.71	.26	.02	.00	-.36	-.08	-.25	-.07	-.17				1.206
C7	.07	.12	-.33	-.12	.06	-.05	-.05	.65	-.27	.08	.61	.01	.05				1.187
D7	.50	-.10	-.39	-.02	.05	.08	-.05	.01	-.08	.01	.19	.31	.04				.734
E7	.75	-.05	-.03	.00	-.05	.05	-.08	.08	-.04	.20	.10	.09	-.02				1.005
F7	-.17	.01	.09	.05	.07	.03	-.27	.05	.06	.24	-.15	-.34	.19				.876
A8	-.10	-.09	.06	-.19	-.09	.44	.00	.34	-.21	-.08	-.02	.08	-.01				.392
B8	.06	-.23	.08	.07	.59	.21	.07	.07	.20	-.06	.18	.01	.35				1.229
C8	-.73	.08	-.15	.01	.00	-.10	-.08	-.01	.08	.03	.08	-.02	.03				.850
D8	.58	.20	-.02	-.26	.15	-.08	.00	.00	.01	-.09	-.09	.36	.10				.972
E8	.75	-.03	.10	-.09	.00	-.02	-.09	-.09	.33	.06	.08	.00	.08				1.024
F8	.04	-.18	-.28	.41	-.12	.00	.07	.01	-.03	.10	.07	.01	.27				.333
Variables in ± 10																	
Hyperplane Variables	29	33	32	30	34	38	31	35	32	31	33	35	31				
Variables in ± 5																	
Hyperplane	11	14	17	24	20	15	20	20	20	18	15	14	16				

TABLE 3
DIRECTION COSINES AMONG ROTATED FACTORS (REFERENCE VECTORS)

Factor number	1	2	3	4	5	6	7	8	9	10	11	12	13
1	x												
2	-.46	x											
3	.00	.07	x										
4	.03	.03	-.31	x									
5	-.03	.36	-.26	-.20	x								
6	.04	-.38	.10	.03	-.36	x							
7	.01	-.05	.00	.08	.30	.04	x						
8	.00	.07	.02	.02	-.13	.21	-.04	x					
9	.14	-.06	.04	-.18	.28	-.03	.09	-.11	x				
10	-.10	.00	-.50	.16	.44	-.32	-.04	-.30	-.06	x			
11	-.02	.02	.03	.14	-.22	.00	.03	.01	-.07	-.01	x		
12	.00	-.02	.04	.00	-.02	.03	.00	.02	-.17	-.02	-.10	x	
13	-.01	-.07	.02	-.10	.10	-.06	.09	.02	.41	.01	-.07	.00	x

Although the simple structure obtained in this study was a very clear one, as will be seen from the number of variables in the hyperplane in Table 2, nevertheless, we have run into a finding which is quite peculiar in the factor analytic field, namely that the bulk of the variance for the psychological variables has fallen in one factor. A rather large slice of the variance of the personality *rating* variables has fallen in one of the objective test factors, i.e., the first. This cannot be accounted for by any artifact of the rating that we know of. Halo might yield a halo among ratings if factored on their own, but there is no reason why this should align itself with a factor primarily appearing in the realm of objective tests. It is possible that we are dealing with a second order factor among the well-known rating factors in this first psychosomatic objective test factor. The possibility that a first-order factor in one realm will turn out to be a second-order factor in another realm, has already been discussed theoretically by Cattell (4) and demonstrated as a possibility in a comparison of factors from rating, questionnaire, and objective test realms by Cattell and Saunders (10). For the present we can only record this somewhat strange finding in the hope that, with the development of similar studies elsewhere, sufficient data will become available to explain it.

Factor 1 cannot be definitely matched with the factors of previous R- and P-techniques because it seems to be a mixture of both the Factor F (Surgency-vs.-Desurgency) and the obverse of Factor C (Emotionally Stable Character-vs.-Demoralized General Emotionality). The high fluency of association in drawing, sway suggestibility, and verbal fluency are regarded as indicative of low character integration (3) and point out qualities of the

TABLE 4
FACTOR 1

Factor loading	Variability	Description of factor by loadings
-.84		Low 17-ketosteroids
.75		Great conscientiousness over detail
.75		Little distraction by noise
-.73	.76	Fast reaction time
.67		Large number of figures added
.62	.87	Fast tempo
.59	.89	Large number of reversible perspectives
.58		Large number of drawings (fluency)
.51		High suggestibility (away)
.50	.77	High verbal fluency of association
-.44	.81	Small number of red blood cells
.39		Ataxia (total away)
-.33		Small percentage of polymorphonuclear neutrophils
<i>Correlation coefficients or ratings with Factor 1</i>		
Correlation coefficient		Interpretation
-.807*		<i>Good control of memory^a</i>
.795		<i>Feelings not easily hurt; not lonely; everything seems to have gone well; not depressed</i>
-.781		<i>Emotional; Below average in perseverance; variable in mood</i>
.741		<i>Not shy and self-conscious; not daydreaming; sociable</i>
-.732		<i>Self confident; absorbed in work</i>
.723		<i>Not unduly worried and tense; not anxious or tense</i>
.664		<i>Did not keep to one track in conversation; cheerful</i>

C (—) factor. The ratings also have some of the qualities of the C (—) factor.

However, there is also evidence for a contamination with the F factor. The fast reaction time (6), the small number of red blood cells (8), plus the ratings, "Not unduly worried and tense; did not keep to one track in the conversation (high ability to acquire new mental set); Sociable" indicate a friendly assertiveness. Variables such as fast tempo and large number of figures added indicate a high level of nervous energy which is indicative of the F factor. Perhaps this factor should be further rotated in order to compare it with the other factors obtained in the previous R- and P-techniques.

Factor 2 has a resemblance with the "twin" factor of C which is G. High cholinesterase and 17-ketosteroids have been found to be present when the organism is in a state of emergency (21, 22, 15). The loading of low perseveration is relatively small here and the ratings such as "not excited and

*The ratings appearing in italics are those made by the subject; the other ratings are those made by the two observers.

TABLE 5
FACTOR 2

Factor loading	Variability	Description of factor by loadings
.87	.93	High 17-ketosteroids
.67		High cholinesterase
.64		Large number of words remembered
— .37		Low pH of saliva
— .37		Low perseveration
— .32		Low pulse pressure
.36		Large difference between the two flicker fusion thresholds
<i>Correlation coefficient or ratings with Factor 2</i>		
Correlation coefficient	Interpretation	
— .659	<i>Good control of memory</i>	
.497	<i>Not shy and self-conscious; not daydreaming; sociable</i>	
.485	<i>Did not keep to one track in the conversation; talkative</i>	
— .481	<i>Not excited and rattled; above average in persistence; emotionally under good control; steady, calm, realistic</i>	
.468	<i>Adventurous, debonair; high sex and food interests</i>	
.443	<i>Not sensitive; in high spirits; not lonely; things have gone well; cheerful</i>	
.431	<i>Not worried and tense; adaptable, easy-going, placid</i>	

rattled; above average in persistence; steady, calm, realistic" lead us to believe this factor may be an indication of a drive or of a self-imposed emergency state which may be similar to the perseverance and self-sufficiency found in Factor G.

It should be pointed out that this factor has a —.46 correlation with Factor 1. This may, therefore, be the F factor with contamination of G. The F factor is represented by high ability to acquire new mental set ("Did not keep to one track in the conversation") and by ratings such as "not worried and tense."

Factor 3 seems to be most similar to Cattell and Luborsky's (8) Therapeutic Trend Factor because of the importance of the temporal order of the sessions. We note that there are similarities as well as differences which one would expect as this subject for this P-technique was not undergoing psychotherapy. The similarity is noted by the loading of the large percentage of lymphocytes and the high level of calcium in the blood serum. Because of the fact that Cattell and Luborsky's (8) subject was a clinical case, the difference in the loading of fluency, indicating lower character-integration present in their factor, can be explained. It appears, therefore, that this factor represents an emotional trend in the routine of taking the daily tests which was especially present in the first part of the 110-day interval.

TABLE 6
FACTOR 3

Factor loading	Variability	Description of factor by loadings
.71		High calcium content of the blood
-.55	.71	Low blood pressure
-.52		Negative practice effect
.45		Large difference between the two flicker fusion thresholds
-.39	.77	Low fluency (verbal)
.39		Large percentage of lymphocytes
.37		High pulse pressure
-.33	.71	Low critical frequency of flicker fusion
-.31		Low glycoase content of the blood
-.31		Small percentage of eosinophils
.31		Large volume of urine
<i>Correlation coefficients of ratings with Factor 3</i>		
Correlation coefficient		Interpretation
.200		Self assertive, confident, conceited

TABLE 7
FACTOR 4

Factor loading	Variability	Description of factor by loadings
.73		Large number of hours after waking
.68		Large number of cigarettes smoked
.62		Large number of urinations
.44		Large percentage of eosinophils
.41		Large number of defecations
.32		Large number of white blood cells
.31		Large ratio of pupil of eye to iris
-.30		Small percentage of segmented nuclear cells
<i>Correlation coefficients of ratings with Factor 4</i>		
Correlation coefficient		Interpretation
-.178		Much time spent in serious discussions

Factor 4 seems to be a factor which clearly denotes lateness of hour of day because of the loadings of variables such as large number of cigarettes smoked, frequency of urination and defecation, large number of white blood cells, and of course, large number of hours after waking. This factor is not similar to the Fatigue-vs.-Energy Reserve Factor (6) or to the Fatigue or Vagotonia Factor (8). A correlation of this factor with ratings is absent which one would expect if this factor were merely the time of the day the tests were given. However, the low correlation of this factor with "Much time spent in serious discussions" is congruous with lateness of hour of day.

TABLE 8
FACTOR 5

Factor loading	Variability	Description of factor by loadings
.78		High cholinesterase
-.71		Low pulse pressure
-.59		Low predicted basal metabolism rate
-.42	.93	Low pH of saliva
-.37		Low ratio of emotional to unemotional words remembered
.32	.93	High pH of urine
.30		Large percentage of stab nuclears
<i>Correlation coefficients of ratings with Factor 5</i>		
Correlation coefficient		Interpretation
-.301		<i>Shy and self-conscious; day-dreaming; self-contained, withdrawn</i>
-.251		<i>Submissive, gentle (not confident, not self assertive, not conceited)</i>
-.230		<i>Tense, worried; anxious</i>
.208		<i>It is the fault of others when things have gone wrong</i>

Because of the ratings, Factor 5 seems similar to Factor A, F, or H found in previous studies (3, 6, 8). However, we cannot align this factor with any of those. Since previous P-technique factors have not as yet established Factor L, Surgent Cyclothymia-vs.-Paranoia, we believe this is a new P-technique factor similar to Factor L found by the R-technique. This factor with its variables of high cholinesterase, low basal metabolism rate, and the correlation of these ratings, lead us to believe this is a picture of suspicion, withdrawing, and frustration. Factor L is highly correlated with Factors A and

TABLE 9
FACTOR 6

Factor loading	Variability	Description of factor by loadings
-.60		Low cholinesterase
-.53	.84	Short dark-adaptation time
-.47		Small difference between the two flicker fusion thresholds
.46		Large volume of urine
.44		Large magnitude of PGR deflections
.43		High ability to relax (PGR)
-.44		Low glucose content of the blood
.39		High initial PGR resistance
<i>Correlation coefficients of ratings with Factor 6</i>		
Correlation coefficient		Interpretation of correlation
-.156		<i>When things have gone wrong today, it has been mostly my own fault</i>

H (3) and further P-technique studies will determine if this is the L factor of the R-technique.

Factor 6 has a number of objective test variables in it which are similar to Factor H, Adventurous Cyclothymia-vs.-Withdrawn Schizothymia. Large PGR deflections, low glucose content of the blood, and high initial resistance on PGR are found in Factor H of Cattell and Luborsky's study (8). The upward drift of PGR after stress is also present in this factor in the P-technique study by Cattell, Cattell, and Rhymer (6).

However, this factor is again not in complete alignment with the factors found in previous P-techniques. The high skin resistance, the skin resistance rise in the relaxation period, and the magnitude of the PGR response seem to describe a parasympathetic factor which is very similar to the obverse of Darrow and Heath's (13) physiological factor and to that of Freeman and Katzoff (16). Since blood pressure is not high here, the high galvanic reactions are indicative of a strong cholinergic activity (12). This factor, as has been previously pointed out by Cattell (5), is probably one indicating a parasympathetic inhibition.

Since Factor 7 is not identifiable with any of the factors found by the two previous P-technique studies, it appears as if this is another factor which has shown itself for the first time in the P-technique studies. The high glucose

TABLE 10
FACTOR 7

Factor loading	Variability	Description of factor by loadings
— .66		Small difference between the two flicker fusion thresholds
.61		High glucose content of the blood
— .60		Small percentage of polymorphonuclear neutrophils
.52		High calcium content of the blood
.51		High self-rating on stuttering
.44		Large percentage of lymphocytes
<i>Correlation coefficients of ratings with Factor 7</i>		
Correlation coefficient		Interpretation
.295		Not shy and self-conscious; not day-dreaming; sociable
— .290		When things have gone wrong today, it was mainly my own fault
— .269		Self confident; absorbed in work
.250		Not sensitive; in high spirits; not lonely; things have gone well; cheerful
— .249		Memory under good control
— .224		Not excited; persevering; emotional moods under control; calm, steady
.211		Not startled and distracted by sudden sounds

is often found to accompany emotions such as rage (14), while the high calcium in the blood serum is often found to be concomitant with an increase in the manic state and with the "nervousness" of the individual (17). A large number of lymphocytes may indicate the organism is in some way "pressed" such as in an inflammatory state. The high self-rating on stuttering, which the subject has often stated is brought on by tenseness and frustration, would complete the picture of tenseness and frustration with an element of neuroticism. The ratings indicate that this may be Factor I, Sensitive, Anxious Emotionality-vs.-Rigid, Tough Poise.

TABLE 11
FACTOR 8

Factor loading	Variability	Description of factor by loadings
.65	.71	High critical frequency of flicker fusion
.56		Large ratio of pupil of eye to iris
.53		High ratio of emotional to unemotional words remembered
.50		High initial PGR resistance
— .45		Low tolerance of electric shock
— .38	.81	Low specific gravity of urine
.34		Large deflections of PGR
— .31		Small number of red blood cells
<i>Correlation coefficients of ratings with Factor 8</i>		
Correlation coefficient	Interpretation	
— .249	<i>When things have gone wrong today, it was mainly my own fault</i>	
.220	<i>Adventurous, debonair, high sex and food interests</i>	

In Factor 8, there is a concomitance of the PGR deflections and dilation of the pupil. This has been referred to as the "autonomic reflex" (25). The percentage deflections of PGR, which indicates momentary spurts by means of the sympathetic nervous system, have a relatively low loading in this factor which is expected when we find the initial PGR resistance is relatively high, indicating that there is a relatively low "tonic" influence on the sweat glands of the palm by the sympathetic nervous system. This factor is very similar to a general autonomic factor found by Herrington (18).

There is also a close resemblance to the H factor, Adventurous Cyclothymia-vs.-Withdrawn Schizothymia, in both of the previous P-technique studies. As Cattell has already pointed out (5), the above physiological pattern may be the "inward" expression of the H factor.

Factor 9, as has already been pointed out by Cattell (5) is the opposite

TABLE 12
FACTOR 9

Factor loading	Variability	Description of factor by loadings
-.80	.93	Low pH of saliva
-.63		Small number of words remembered
-.56	.84	Short dark-adaptation time
-.36		Low pulse pressure
.34		Positive practice effect
.34		High PGR initial resistance
.33		Little distraction by noise
<i>Correlation coefficients of ratings with Factor 9</i>		
Correlation coefficient	Interpretation	
.373	Persevering, conscientious	
-.327	Not excited; above average in persistence; emotional moods under good control; steady, calm	
.323	Have not kept to one track in the conversation; talkative	
.313	Not sensitive; in high spirits; not lonely; things have not gone wrong today; cheerful	
.255*	Not worried and tense; adaptable, easy going, placid	
-.255	Memory under good control	
.241	Accommodating, communicative, dependent	

of sympathetic overaction as indicated by the high PGR initial resistance and the low pH of saliva. It also represents a personality pattern very similar to that found when anabolism is present. The dark-adaptation period is short which may be due to an increase in the blood glucose. The blood glucose is not high, but as has been shown by Tod and Sanford (23), it can return to normalcy within one hour, and blood glucose was measured at least one hour later than dark-adaptation. The absence of hunger and the satiation of the subject after a meal may explain the small number of words remembered and the lack of distractibility. Perhaps this factor is similar to the A factor, Cyclothymia-vs.-Schizothymia. The variable, small number of words remembered, along with the ratings "accommodating, communicative, dependent" and "adaptable, easy-going" have been found to load this factor (6, 8).

Factor 10 is as yet not identifiable with any of the P-technique factors already found by other studies. A low ratio of emotional to unemotional words remembered has been shown by Cattell, Cattell and Rhymer (6) to load the negative pole of Factor H, Adventurous Cyclothymia-vs.-Withdrawn Schizothymia. High perseveration has been interpreted to indicate nervous exhaustion, "touchiness," "nervousness," and low character-integration (3). The large ratio of the pupil of the eye to the iris indicates a pre-

TABLE 19
FACTOR 10

Factor loading	Variability	Description of factor by loadings
-.86		Low ratio of emotional to unemotional words remembered
.76		High perseveration
.31		Large ratio of pupil of eye to iris
-.30		Small volume of urine
.30		High glucose content of the blood serum
<i>Correlation coefficients of ratings with Factor 10</i>		
Correlation coefficient		Interpretation
-.225		<i>It has been mainly my own fault when things have gone wrong today</i>
-.211		<i>Suffered from no insomnia last night</i>

dominance of the sympathetic nervous system. As has been shown by Mohr (20), it is not uncommon to have either polyuria or anuria due to an emotional state. The high glucose content of the blood serum may accompany fright, rage, or anxiety (1).

It appears as if Factor 10 represents an emotional state, but at this time it cannot be positively identified with those of other P-technique studies. Perhaps this is Factor J, Neurasthenia-vs.-Vigorous, "Obsessional Determined" Character, which is a source trait of deep, chronic nervous fatigue, or one of some physiological disorder (3).

TABLE 14
FACTOR 11

Factor loading	Variability	Description of factor by loadings
.63		Great endurance by electric shock
.61		High critical frequency on flicker fusion
.53	.81	Large number of red blood cells
.52		Large volume of urine
.40		Large frequency of PGR deflections
.30		Positive practice effect
<i>Correlation coefficients of ratings with Factor 11</i>		
Correlation coefficient		Interpretation of correlation
.422		<i>Suffered from some degree of insomnia</i>
.255		<i>When things have gone wrong, it has been the fault of others</i>
.251		<i>Lacking in self-confidence; not absorbed in work</i>
-.219		<i>Day-dreaming; shy and self-conscious; self contained, withdrawn</i>

Factor 11 has the variable, large number of red blood cells, in common with Cattell and Luborsky's (8) Desurgency-vs.-Surgency factor, and the variable, frequency of PGR deflections, in common with the Fatigue-vs.-Energy Reserve factor of Cattell, Cattell, and Rhymer (6). However, this is not identical to either of those and no factor seems to match this one. The large volume of urine, large number of red blood cells, and the large number of PGR deflections may indicate a predominance of the sympathetic nervous system. The ratings such as those of insomnia may also indicate this sympathetic predominance.

Although the loading is relatively low, there is a positive practice effect, i.e., Factor 11 occurred oftener toward the end of the 110-day testing period. Oftentimes, during the last part of the period, the subject would ask if we could stop sooner with the experiment, although he was never insistent upon quitting before the entire 110-day period was finished, but was very bored and annoyed by the thought of continuing any further. This factor seems to present such a picture.

Using Wilson's index of resistance (1), we find that the small percentage of polymorphonuclear neutrophilic leucocytes in Factor 12 indicates a low physical resistance to infection. The large number of stab nuclears indicates

TABLE 15
FACTOR 12

Factor loading	Variability	Description of factor by loadings
.81		High specific gravity of urine
-.40		Small percentage of polymorphonuclear neutrophils
.37		Large percentage of stab nuclears
.36		High fluency in drawings
-.34		Small percentage of basophils
.33		Large difference between the two flicker fusion thresholds
-.33		Small percentage of eosinophils
.31	.77	High verbal fluency of association
<i>Correlation coefficients of ratings with Factor 12</i>		
Correlation coefficient		Interpretation of correlation
.338		Accommodating, communicative, dependent
-.317		Not excited; above average in persistence; emotional moods under control; steady, calm, realistic
.300		Not sensitive; in good spirits; not lonely; things have gone well; cheerful
.287		Persevering, conscientious
.280		Not worried and tense; adaptable, easy going, placid
.273		Vigorous, cooperative
.260		Mind has not kept to one track in conversation; talkative

a shift to the left of the Arneth index. We know this occurs along with a high total white blood cell count in case of appendicitis, acute sepsis, and so forth. Perhaps the large percentage of stab nuclears indicates a lowered resistance, although no specific disease was present. We know that fluency has been regarded as indicative of low character integration. Factor 12, therefore, seems to represent a picture of low physical resistance.

TABLE 16
FACTOR 13

Factor loading	Variability	Description of factor by loadings
.56		Large number of cigarettes smoked
— .52		Low specific gravity of urine
— .43		Small percentage of eosinophils
— .35		Low basal metabolism rate
— .34		Small number of words remembered
<i>Correlation coefficients of ratings with Factor 13</i>		
Correlation coefficient		Interpretation of correlation
— .222		Stern, solemn, secretive

Factor 13 has a slight resemblance to Cattell and Luborsky's (8) C (—) factor, General Emotionality-vs.-Emotional Stability, Maturity, by the variables small number of words remembered and large number of cigarettes smoked (the latter variable as an indication of emotionality). However, there is not a close enough agreement to feel this is the C (—) factor. The low basal metabolism rate which has been found to be in direct relationship with the amount of physical energy expended (18) indicates that there is a state of apprehension, apathy, discouragement, or a condition of being jaded.

D. SUMMARY

1. Thirteen factors, rotated to simple structure, have been found by this P-technique study of a "normal" 23-year-old man who was a graduate student at the University. Most of these factors, as did those of Cattell and Luborsky (8), contained loadings in both the physiological and psychological areas.

2. This study has confirmed the previous P-technique studies that daily variation in physiological and psychological variables show functional connections.

3. Those factors which appear to be identifiable or similar to those of previous studies are Factors F, H, I, J, L, and perhaps G and A.

4. If, upon a factorization of the correlation coefficients of the ratings with the factors, these interpretations of these factors are found to be acceptable, it appears as if some of these factors may be contaminated with others. Factor F may be contaminated with C, and Factor G with Factor F.

5. Four factors (6, 11, 12, and 13) are either new factors or familiar factors which cannot as yet be identified. Factor 6 appears to be that of Parasympathetic Inhibition; Factor 12 seems to be that of low physical resistance accompanied by low character integration; Factor 13 appears to represent a discouraged, jaded condition; while Factor 11 cannot be identified at this time.

6. Two new P-technique factors appear to confirm those found by the R-technique, namely Factors I and L.

7. This study confirms Cattell and Luborsky's (8) hypothesis that the H factor is loaded with physiological variables having "emotional responsiveness, dynamic vigor or readiness" such as high initial PGR resistance, large ratio of pupil of eye to iris, and large deflections of PGR.

8. This subject's high self-rating on stuttering was present in a factor which indicated the organism was "pressed" in a physiological way more so than in a psychological sense.

9. Three factors seem most likely to be connected largely with autonomic action; namely, Factors 6, 8, and 9.

10. In this study, many of the physiological variables have been used for the first time in a P-technique study and an explanation of the relationship found between many of these variables appears too complex at the present time. Another factor analytic P-technique study, using these same variables would be necessary to further determine how much of the P-technique factors differ from source traits found by the R-technique studies, from unique source traits of another individual, and from error of measurement. It is to be hoped that other P-technique studies will include a sufficiency of common "marker" variables to permit better accumulation of comparable data which, as further studies on individuals accrue, will permit overall generalizations among them.⁵

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SEVERAL CORRELATES OF A CONSERVATISM-LIBERALISM ATTITUDES SCALE*

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A. PURPOSE

In the search for attitude correlates two reservations must be kept in mind: Carter's (2) observation that "the structure of social attitudes regarding war or any other major aspect of culture is extraordinarily complex. . . . It is evident that no definite method for the analysis of social attitudes has yet been devised," and La Piere and Farnsworth's (11) warning that there is no necessary correlation between verbalized and operational attitudes since symbolic and non-symbolic activities are acquired by different processes.

Within these limitations the present investigation attempts to examine the relationships in an adult group of attitude to several variables: age, intelligence, education, and temperamental traits; and to discover whether the sub-sections of the attitude scale used together produce a generality that can be called liberalism-conservatism.

B. PREVIOUS STUDIES

There is no scarcity of studies in attitude correlates. Kerr (9) has summarized the major trends in studies of correlates of political-economic liberalism and conservatism. He finds a positive "*r*" between attitude and intelligence; between liberal attitude and formal education, as do Hartmann (5), Hunter (7) and Centers (3); a decline of liberalism with age; a dependence of liberalism on introversion. On this latter point, Eysenck (4) is not in agreement. His results show liberalism and extroversion related.

Sanai and Pickard's (14) data, however, do not support any of the "popular psychoanalytic or clinical assumptions regarding the relationship between radicalism and temperamental traits."

• That conservatism in religion does not necessarily imply an operational acceptance of one's fellow man has been pointed out by several workers. Hunter (7) observed this in a southern group. This is also the finding of Adorno, Frenkel-Brunswick *et al.* (1): subjects with some religious

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affiliation are more prejudiced than those without, with no significant difference in the attitudes of Protestants and Catholics. Kirkpatrick (10) observes that the relationship between religiosity and humanitarianism does not support the common assumption of religion as the source of humanitarianism.

Kerr, (9) too, concluded that there is a greater probability of finding racial prejudice among conservatives than among liberals and, conversely, that politico-economic liberals tend to be above average in racial and social liberalism.

Reichard (13) states negatively that the prejudiced are less interested in thinking.

Concerning the currents in the liberal-conservative climate within the last 20 years, Hunter, (8) observing the attitudes of incoming freshmen at Converse College, a small, southern liberal arts college for women, for the years 1934 to 1949, concluded that for the Test of Social Attitudes as a whole, the 16 years show little variation, due, in part, to the cancellation effects of the sub-test changes. Liberal attitudes showed marked gains from 1936 to 1939, gradual losses from 1940 to 1943, slight gains from 1944 to 1946, and slight losses in the last three years of the study. With the exception of the Negro attitudes curve which moves sharply up in a liberal direction from 1944, the other sub-sections show a downward tendency.

C. PROCEDURE

In order to examine several correlates of attitude, Hunter's Test of Social Attitudes, the Bernreuter Personality Inventory, the Otis S-A Test of Mental Ability, Higher Form B, and the Bellevue-Wechsler Adult Intelligence Scales (verbal section only) were administered to 69 adults, 18 to 58 years of age, attending a series of psychology lectures at the Indiana University Extension in Fort Wayne during the fall of 1949. To increase the dependability of response, no names were signed to any test. S chose three initials, not necessarily his own, as a means of consistent identification.

The 94 items of the Test of Social Attitudes cover seven areas: the Negro, war, economics and labor, social life and convention, government, religion and "miscellaneous." The scoring provides plus and minus 1 for moderate, plus and minus 2 for extreme responses, with possible maximum liberal and conservative scores of plus and minus 188. A 0 response indicates indecision, uncertainty, or lack of information or conviction.¹

¹The zero response allows a loop-hole yielding a possibly spurious score for the non-committal. As Marks (12) says: "The 'don't know' response is an evasion

The test norms derive from a period antedating 1939 and are based on the scores of 1500 students of colleges in the southeast corner of the United States, two-thirds of whom were freshmen, 40 sophomores, about 50 graduate students, and the rest juniors and seniors.

For 200 subjects, Hunter cites correlations of total scores and individual sections ranging from a low of .47 (social life and conventions) to a high of .77 (the Negro) as measures of internal consistency. Validity is inferred from a comparison of scores made by socialists (86.1), advanced graduate students in a liberal state university (82.3), and freshmen at a small religious school in a conservative center (-23.4). For 200 S's he reports a corrected reliability of .87.

The speed of historical development since the test was copyright in 1939 might presumably affect the climate of response. In the light of Supreme Court decisions and the appointment of Negroes to high places in recent years, statements like "The only accomplishment of the Negro worthy of any recognition has been in the realm of music," or "The Negro is naturally and irrevocably inferior to the white man," or "The inability of the Negroes to develop outstanding leaders dooms them to a low place in society," or "It is a safe prediction that Negroes will never be allowed to attend the white universities in the south," to name only four of 20 items in this section, could hardly be subscribed to by persons of even strong prejudice.

Similarly, in terms of current war preparations, will former liberal-conservative interpretations of statements on military preparedness, the abolition of war, its illegitimacy, etc., still be classifiable as such? According to Hunter's scales, to disagree with "When a nation is in danger it is the duty of every loyal son to come to her aid," is an index of liberalism, as is non-acceptance of "Military preparedness is essential for the proper defense and protection of the citizens of a country."

In the field of economics, "The wealthy class should be taxed more heavily than at present" might, in view of the prevailing high taxes on large incomes, require rewriting to evaluate rather the degree of agreement on closing off avenues of tax escape. In the mid-thirties, "Russia has made more genuine social progress during the past twenty-five years than any other country in the world" enjoyed a sympathy absent for some years.

used in a stigmatized situation." On the 94 items, S could, for example, cover his tracks with a 0 response to 50 of the most significant statements, a moderate liberal response to 27, a moderate conservative response to 17, and produce a liberal score of 10, equalled or exceeded by only 30 per cent, according to Hunter's percentile norms.

With social growth already accomplished in this direction, opposition to "Old age unemployment insurance should be maintained by the national or state government" could conceivably vanish. Would anyone today publicly subscribe to the statement, "The present economic system in this country should be radically changed?"

In the section on "government" the item on Senator Robert M. La-Follette, senior, would probably encounter an embarrassment of information in a young group. Under "miscellaneous" appears an item declaring "College teachers should have the greatest possible freedom in discussing their opinions with their students, even if the opinions are antagonistic to convention." On this point, little need here be said. And what, in terms of recent "educational campaigns" by the professions concerned, about "All diagnostic, medical and dental work should be a function of the state?"

D. RESULTS

From the data, four patterns have been derived: (a) the group characteristics according to age, intelligence, schooling, parents' average schooling, Bernreuter percentiles, and number of siblings; (b) the total and sub-test attitude scores, along with Hunter's norms; (c) the inter-sub-test correlations; (d) the intercorrelations of the several group characteristics.

The group was of high educational level, only two persons reporting less than secondary school completion, and relatively homogeneous in this respect. Even parents' schooling (average of both) is somewhat better

TABLE 1
CHARACTERISTICS OF THE EXPERIMENTAL GROUP

Variable	No. S's	Mean	SD
Age	69	31.06	10.63
Intelligence			
B-W Verbal	53*	114.14	9.43
Otis	48	105.79	12.72
Schooling in years	69	13.03	1.61
Parents' average schooling	57*	9.26	3.08
No. siblings	66*	3.39	2.44
BPI percentiles			
Intro-extroversion	43*	57.60	29.67
Dom.-submission	43*	36.07	26.60
Self-sufficiency	43*	47.19	23.74

*The population size varies in several variables. In every case, however, members of the smaller samples were part of the original group of 69.

than grade school, though with greater range. Intelligence seems about average as measured by the Otis S-A Test of Mental Ability, Higher Form B; somewhat higher according to the verbal section of the Bellevue Wechsler Intelligence Scales.²

Median income was about \$3000. Fifty-seven per cent of the group, most of them office workers, were 30 years of age or under. Twelve were in business, nine were executives, six were professionals, three were factory workers.

The proportion of Catholics to Protestants, 7 to 54, was smaller than in the community (ratio 1:4); of Democrats to Republicans, 23 to 32, about the same (ratio 3:4). Two Quakers were socialists. Twenty-five were married, 37 single, 5 divorced, 2 widowed. Most of the group had lived in the area all or most of their lives and liked living in Fort Wayne (pop. 135,000) "because it is neither too big nor too small."

Although with considerable variation, the group nonetheless tended to be normally introverted and self-sufficient, but, at the 36th percentile, somewhat submissive.

TABLE 2
MEANS, STANDARD DEVIATIONS, AND PERCENTILE NORMS OF THE TOTAL AND SUB-TEST ATTITUDE SCORES

	No. test items	Mean	SD	Percentiles
Total scores	94	1.06	30.65	40
Total minus Negro and miscellaneous	62	-15.28	20.85	55
Negro	20	13.58	16.50	20
War	15	-1.99	6.58	70
Econ. and Labor	15	-2.17	8.86	75
Soc. Life and Conventions	12	-0.42	6.74	75
Govt.	10	-4.46	5.65	60
Religion	10	-5.88	4.65	50
Miscellaneous	12	2.97	6.22	40

The mean of the total attitude score, 1.06, lies at the 40th percentile of Hunter's norms; this would place the Fort Wayne sample among the more liberal. Inspection of the individual sub-tests, however, reveals a

²Of the 53 persons for whom B-W intelligence scores are available, 33 or 62 per cent showed an IQ of 110 or more, with a range of 98-138. For 48 of this group, Otis IQ's ranged from 77 to 132. Hovland and Wonderlic (6), surveying an adult population of over 8000 of all ages, found the Otis too easy for adults. Since in the present instance the B-W produced even higher scores, it may presumably yield a too flattering estimate. With an "r" of .69 for the two tests, the higher IQ's tended to approximate; the lower ones showed large discrepancies in many cases. In the several age zones, these high IQ's appeared as follows: 18-29, 72 per cent; 30-39, 36 per cent; 40-49, 60 per cent; 50-59, 64 per cent.

curious anomaly: With the exception of the "miscellaneous section" (12 statements on education, athletics, moving pictures, women drinking, etc., having little relevance to the rest of the test) only the Negro attitude score is a plus score, and, at the 20th percentile, considerably more liberal than the nearest sub-test at the 50th.

Then the total mean score is obviously irrelevant to the true nature of the Fort Wayne sample's reaction. If the large aberrant score on Negro attitude is subtracted, the mean drops to -12.54 , at the 60th percentile; if in addition, the miscellaneous score is eliminated, it is reduced to -15.28 , a score equalled or exceeded by only the most conservative 30 per cent.

The scores based on concepts are consistently in the conservative direction. It might then be suggested that the Negro attitude scores, based on reactions to people, be treated separately as differing not only in degree but in kind. That this is a legitimate supposition is implicit in an insignificant " r " of .19 between Negro attitude score and the total of the other sub-section scores.

TABLE 3
SUB-TEST INTERCORRELATIONS

Negro	War .47**	Econ. Labor — .07	Soc. life Conv. — .29*	Govt. .00	Religion .09
War		.05	.10	.24*	.32**
Econ. Labor			.53**	.42**	.28*
Soc. Life Conv.				.06	.11
Govt.					.25*

**Significant at the 1 per cent level.

*Significant at the 5 per cent level.

The 15 sub-test intercorrelations in Table 3 show none high, four at the 1 per cent, and four at the 5 per cent level of significance. For this group of subjects at least, the sub-tests do not seem to measure a general attitude that can be called liberalism-conservatism. The low number of significant correlations and the relatively low value of the largest ones, added to the strange negative relationship of Negro and social-convention attitude, makes it seem likely that these sub-tests do not measure a generality satisfactorily.

The negligible dependence of Negro and religious attitudes confirms the conclusions of other workers cited above.

The correlations in Table 4 corroborate several previous findings, challenge several others, and introduce a novel one. Again none is high, due in part

TABLE 4
INTERCORRELATIONS OF THE SEVERAL GROUP CHARACTERISTICS

	Intell.	Educ.	Age	Intro- extro- version	Dom.- sub- mission	Self- suff.
Att.	.40**	.24*	.11	.00	.04	.09
Omitted items	-.31*	-.07	-.05	.14	-.26	.43**
Intell.	—	—	B-W .27 Otis -.12	.09	-.08	.04
No. siblings	—	—		-.28	.29	.20
Att. to Negro	.38**	.08				
Educ.	.35**					
Parents' educ.	-.09					

**Significant at the 1 per cent level.

*Significant at the 5 per cent level.

to the comparative homogeneity of the group in education, intelligence, and length of residence in the area; several, however, are significant.

Liberal attitudes tend to increase with intelligence and education, as indicated in previous studies. Age here, however, seems to exert little influence. A liberated approach to the Negro inheres in greater intelligence, but bears little relationship to schooling, according to these data. The background lent by parents' education plays no part.

Other correlations, not related to attitudes, show negligible interdependence between parents' education and intelligence, intelligence and temperamental traits. The relationship between number of siblings, intro-extroversion and dominance-submission just fails to reach the 5 per cent significance level (.308), but the direction conforms with expectations. The values for age and both intelligence tests are small.

An unanticipated finding and one perhaps not yet dealt with in the literature derives from the analysis of the "non-committal test item" as an experimental variable. Its original function in the attitudes test is a simple expression of uncertainty, indecision, lack of information or conviction. Here it shows a fairly strong negative relationship with intelligence, none with age or schooling, an insignificant value with introversion, a close to significant (.296), negative value with dominance-submission (the more items marked 0 the less dominant), and, highest value on the chart, definite indication that feelings of self-insufficiency are expressed in a higher number of omitted items. Here is a possible diagnostic tool, the omission operating dynamically as "an evasion in a stigmatized situation" (12).

Thumb-nail sketches of the two most liberal, two most conservative persons in the group may serve to bring the objective findings to life, though

as individuals they do not bear out the correlation tendencies in each instance.

Score 106. (1st percentile). Female, age 58 years, widowed. Six siblings; 12 years schooling; *IQ* 130 (Otis). Parents' education, 8 years; husband's education, 8 years. Office worker; income under \$2500. Quaker, Socialist. Slightly introverted, slightly dominant, very highly self-sufficient. Omitted no test items.

Score 86. (c. 3rd percentile). Male, age 43 years, divorced. Three siblings, 17 years schooling; parents' education, 6 years. *IQ* 132 (Otis). Unitarian; Democrat; income \$4000. Normally introverted, normally dominant, slightly above average in self-sufficiency. Omitted 11 test items.

Score —87. (Below 99th percentile). Male, age 29 years; single. No siblings; born in area and dislikes it. Office worker; income under \$2500. Fourteen years schooling; parents' education, 8 years. *IQ* 77 (Otis). No religious affiliation; Republican. Omitted 23 items. (Personality scores not available.)

Score —89. (Below 99th percentile). Female, age 42 years; married. Two siblings; 13 years schooling; parents' education, 8 years. *IQ* 89 (Otis). Protestant; husband professional; income \$17,000. Critically introverted, critically submissive, below average in self-sufficiency. Omitted five test items.

E. SUMMARY

For 69 adults (59 women) 18-58 years of age, the relations of several variables and liberal-conservative attitude as measured by Hunter's Test of Social Attitudes are presented. The group, somewhat above average in intelligence, educational background, and submissiveness, proved generally conservative except for what seems to be a striking liberalism in attitude toward the Negro. The Fort Wayne sample may constitute a new entity: conservatives with liberal racial attitudes.

This sub-section showed little relation to the total of the other sub-tests, indicating perhaps that attitudes toward people may differ not only in degree but in kind from attitudes toward the impersonal concepts of war, economics, government and the like.

No reason for the racial liberalism could be found in the conservative attitude toward religion expressed by the group.

The sub-tests in turn revealed little inner consistency and the question is relevant whether the test as a whole can be said to measure a general attitude of liberalism-conservatism.

Significant positive dependencies exist between liberal attitude and schooling, liberal attitude and intelligence, and between the latter and acceptance

of the Negro. The expected positive relationships between acceptance of the Negro and schooling, conservatism and age, and liberalism and certain personality traits fail to appear.

An analysis of the number of test items omitted by *S* reveals dependence on intelligence, not on schooling, despite the fact that the item is omitted presumably for indecision, lack of conviction, or information. Most marked is the indication of lack of self-sufficiency in the evasion of threatening test items. The latter might merit further investigation as a diagnostic tool.

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PERSONALITY SCORES AND THE PERSONAL DISTANCE EFFECT*¹

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A. INTRODUCTION

It is a common notion that some individuals are socially oriented so that they relish close personal contacts with their fellows, while others literally keep their distance from the people around them. The former are said to be "sociable," "chummy," "companionable," etc., while the latter are referred to as "distant" and "aloof." In the course of a recent investigation, it was possible to observe this "personal distance effect" in a controlled, non-verbal situation, and at the same time to relate it to scores on two personality inventories. The findings may serve (a) to illustrate the way in which needs and dispositions influence overt behavior vis-à-vis other people, and (b) to indicate a simple, non-verbal technique for studying certain interpersonal attitudes and social distance frames.

B. APPARATUS AND PROCEDURE

The apparatus consisted of a table approximately 7 feet 6 inches long and 2 feet wide. A Clason Visual Acuity Meter was mounted at one end of the table, and at the other end a screen was set up on which images could be projected. Images projected by the Clason remain in focus as they vary in size; hence, under proper conditions the observer experiences the image (stimulus object) as undergoing changes in distance with reference to himself. Thus, the faces used in the present experiment could be caused, apparently, to move back and forth in a straight line away from and toward S.

S sat at the end of the table closest to the projector. By means of a lever convenient to his right hand, he was able to control the size (apparent distance) of the image cast on the screen.² S viewed this image monocularly (right eye) through an aperture in a partition, just in front of him, which concealed the screen. The room was dark except for a little light that es-

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¹This study is part of a larger project in perception supported by a grant from the Research Council of Rutgers University.

²The image was actually directed toward S's end of the table, but was redirected onto the screen by two 45° mirrors.

caped from the projector bulb, and from a small flashlight which *E* used.

S was instructed as follows:

You are going to look at several faces of men. They are pictures, of course. If you like, you may think of them as life-size photographs. You may know some of the men, although I doubt whether you do. You are going to be asked to make some very personal judgments about the faces; for example, whether you like them or find them interesting. You will notice that some of the faces are smiling and pleasant, while others are frowning, snarling and unpleasant. These differences will be apparent to you.

S was then shown how to operate the lever and was allowed to observe a neutral stimulus object, a square of light, as it apparently moved away from and toward him in the viewing field. The first face was then exposed, and *S* was asked to comment on it. He was specifically asked whether he liked the man or not, and whether or not he found him interesting. He was then instructed:

Put the face where you would like to have it in relation to yourself. This is purely a self-reference setting. There's no right or wrong to it. Just leave the face where it is, put it further away, or bring it closer—whatever makes you feel most comfortable.

When *S* had finished his setting, the viewing aperture was covered over and *E* recorded the size of the image. *S* made one setting each for four different faces.

The faces used were from the Frois-Wittmann series (2, 3). The details of their selection and preparation have been presented elsewhere (6). Briefly, two faces describable as friendly and pleasant and two describable as unfriendly and unpleasant were chosen. Slides made from reversed negatives of these were equated for height, width at widest point, brightness, and amount of detail exposed. The projected image of each face could vary in height from 5.5 cm. to 20.3 cm. The height of the image was taken as an index of its size in the present study.³

After completing the settings of the faces, each *S* filled in the Bell Adjustment Inventory, Student Form (1), and the Knutson Personal Security Inventory (4).

³It should be noted that the Frois-Wittmann faces, while reasonably expressive and life-like, were not made under the best conditions of modern photography; also *E* may have detracted from their realism by blocking off certain parts of the faces in the interest of uniformity of size. Hence it is possible that the results obtained in this experiment are minimum, and that more pronounced effects might occur with other stimulus faces.

Twenty-three male undergraduates served as subjects. Each *S* participated individually in the experiment.

C. RESULTS

Analysis proceeded as follows. (a) *Ss* were ranked according to the size of their settings of the faces (image sizes). (b) Average personality scores were computed for the 11 men who made the larger settings of the faces and for the 11 who made the smaller settings.⁴ (c) Differences between the two sets of mean personality scores were then obtained. Pertinent results are summarized in Table 1.

TABLE 1
DIFFERENCES IN SELF-REFERENCE SETTINGS RELATED TO PERSONALITY SCORES

Subjects ^c ranked by	Bell— Total Score ^a	Bell— Social Score ^a	Knutson— Total Score ^b
Two pleasant faces combined			
<i>Ss</i> who made large settings	26.4	6.5	27.3
<i>Ss</i> who made small settings	44.0	13.6	24.2
Differences	17.6 ^d	7.1 ^d	3.1
Two unpleasant faces combined			
<i>Ss</i> who made large settings	31.5	8.4	26.1
<i>Ss</i> who made small settings	41.9	11.8	25.1
Differences	10.4	3.4	1.0
"Less ambiguous" unpleasant face:			
<i>Ss</i> who made large settings	28.4	7.3	25.7
<i>Ss</i> who made small settings	44.5	13.0	24.8
Differences	16.1 ^e	5.7	.9
All four faces combined:			
<i>Ss</i> who made large settings	30.2	7.3	26.9
<i>Ss</i> who made small settings	43.2	12.9	24.4
Differences	13.0	5.6	2.5

^aSmaller scores on the Bell Inventory indicate better adjustment.

^bLarger scores on the Knutson Inventory indicate better adjustment.

^cAll *N*'s = 11.

^dDifference is significant at .02 level.

^eDifference is significant at .05 level.

When *Ss* were ranked by their settings of the two pleasant faces combined, the 11 *Ss* who brought the faces "closer" (made them larger) were apparently better adjusted as estimated by the Bell Inventory than the 11 who

⁴The middle subject in each ranking was excluded from consideration.

sought to push the faces further away (made them smaller). The difference of 17.6 points in the Bell Total Score and of 7.1 points in the Social Sub-scale are both significant at the 2 per cent level. Differences in the three other sub-scales, Home, Emotional, and Health, are in the same direction (not shown in Table 1). On the Knutson Inventory the difference suggests more personal security for the 11 men who brought the faces "closer" to themselves.

Ss were next ranked according to the size of their settings of *the two unpleasant faces combined*. All differences in personality scores point to greater security and adjustment for the men who brought the faces closer to themselves, but these differences are not significant statistically (see table). Ss were then ranked by the size of their settings of each *unpleasant face separately*. For one of the unpleasant faces—apparently the less ambiguous⁵—Ss who brought the projected image "closer" were reliably better adjusted on Total Bell Scores (5 per cent level) than the Ss who "pushed it further away." This trend was confirmed by the differences in all the Bell sub-scales and in the Knutson scores. Rankings by the second unpleasant face confirmed the previously noted trend, but not reliably (not shown in table).

Finally, Ss were ranked by their settings of *all four faces combined*. The 11 men who scored highest on total image settings also averaged 13 points further in the direction of superior adjustment on the Bell Inventory than did the 11 Ss who made the smallest image settings. There are about 90 chances in 100 that this represents a true difference. Differences in the same direction showed up on the Bell Social Scale and on the Knutson Inventory.

In summary, the data suggest a tendency for the men who set the projected faces "closer" to themselves to earn more favorable personality scores than the men who made smaller settings. In several instances the differences in personality scores were too large to be attributed to chance.

D. DISCUSSION

The findings are in line with common sense, and are about what were expected. What psychological implications do they have? They appear to illustrate *the continuous pressure of inner securities and adjustmental tendencies on the sort of personal distances which one spontaneously establishes between himself and others*. Although the stimuli were pictures Ss seemed to regard them as meaningful and realistic. Typical comments were: "Looks

⁵According to average deviations of ratings obtained by Schlosberg (5).

like my brother," "seems friendly," "I could get along with him," "I don't trust him," and "he's somehow beneath me." One gained the impression that Ss were reacting in a free, natural way, giving overt expression to attitudes that were subtle and unverbalyzed in some cases, sharp and conscious in others. Interpretation of the faces in the light of these ego-involved attitudes provided the background out of which emerged the act of setting up a given physical distance between oneself and the "other person."

In everyday life, situations constantly arise in which retiring and insecure persons "push themselves forward," and secure and aggressive ones restrain themselves from being too intimate or assertive. Yet it is a reasonable hypothesis that the sort of person who puts the most distance between himself and the faces in the present experiment would also, in general, sit furthest from other people in a room, walk furthest from companions on the sidewalk, seek a yard well screened from neighbors, etc. Just as Freudian slips, expressive movements, and "occupational postures" tell something about a person, so it is suspected personal distance behavior day in and day out provides a subtle indicator of the structure and purposes of one's personality. The unity of the individual, that is, his attitudes (revealed in the inventories) and his behavior (shown in the size settings), is emphasized.

The personal distance variable is commonly assumed to have practical value in helping one to size up people in daily situations. Whether it could be used in a standardized way for any purpose, such as selecting candidates for certain jobs, might be worth looking into. As a clinical problem, it might be interesting to know more about the sort of people who are able to exercise voluntary control and thus establish personal distances at variance with their felt needs and preferences.

The research technique used in this study, i.e., the projection of images with the Clason, is relatively simple, and could be adapted to a considerable range of clinical and social material. It would seem feasible to devise a set of standardized items, such as faces representing ethnic groups, to which Ss could respond. Attitudes and other information might be revealed that would escape verbal techniques. Some approach such as this, which gets fairly close to full-life social relationships, should at least yield interesting supplementary data in intensive studies of intergroup and interpersonal attitudes.

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ROLE-PLAYING IN PSYCHIATRIC TRAINING*

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NAOMI GOLDBERG AND ROBERT W. HYDE

A. INTRODUCTION •

Successful education of personnel in a psychiatric institution is a process not unlike successful education in any institution, factory, school, or state. An understanding of the needs of the individual in his rôle as worker, student, or voter is the obvious prerequisite for the satisfaction of these needs. An attempt to meet the challenge of providing adequate training for foremen in the fulfillment of workers' needs and in the solution of inter-personal problems in the factor has been made by John R. P. French, Jr. (1). He found rôle-playing an efficient technique for dramatizing foreman-worker relations. Four of the characteristics he mentions as responsible for the effectiveness of sociodrama as a training method are: (a)¹ the "irreal plane" of the setting, (b) the *concrete and realistic* nature of the action, (c) the *flexibility* in the types of problems that can be dealt with and in their solutions, (d) the *stimulation of participation, involvement and identification* which makes possible emotional as well as intellectual solutions to problems.

For psychiatric personnel as well as for industrial personnel there are training demands. Neurotic or psychotic patients are difficult to cope with if the only previous training has been an "intellectual understanding" of their problems. Actual contact with the patient is needed so that this knowledge can be utilized. The problem is: how to give inexperienced psychiatric personnel this necessary experience before they are placed on the wards. Would rôle-playing, which was seen to be effective as a tool for understanding inter-personal relations in a factory, be applicable to the personnel-patient relationships in a psychiatric hospital?²

A sociodramatic technique is being used at the Boston Psychopathic Hospital. Dramatizing ward problems provides a concrete and realistic medium through which tentative solutions can be attained and varied approaches to

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¹"Irreal" as defined here refers to action removed from the setting in which it would normally appear and transposed to an artificial setting. The activity actually occurs and can be reported on.

²Since writing we have found an important contribution in Group Psychotherapy (2).

patients can be investigated. Not only can this be used as a pre-ward training tool, but at any time problems encountered in the hospital may be worked out in the sociodrama and then applied to the existing situation.

B. PROCEDURE

Chairs are grouped in a semi-circle around the front of the auditorium. The sociodrama has been announced to all the patients and personnel and everyone is invited. Nurses, doctors, psychologists, attendants, social workers, occupational therapists, volunteers, and patients are seated at random. Attendance, which for the nurses had been compulsory for a short time, has been put on a voluntary basis to insure the spontaneity which is the essence of sociodramatic participation. Since this hospital has an affiliate-nurse system (which means that every six weeks half of the student nurses leave, the total training period extending over three months), at any session nurses with limited and those with more extensive experience are likely to be present.

The director opens the session by explaining the procedure (which will be found in the following protocol). Problems are not selected beforehand by the director but issue from the audience itself at the time of the meeting. One problem is worked on until everyone who has anything to contribute has been recognized, and then, if there is enough time, a second problem is taken up. A discussion follows the rôle-playing. Patients and nurses alike criticize the part of the therapist;³ patients often tell what they would have preferred in the therapist's approach, drawing on their own experience in similar situations. The discussion leads to a reversal of rôles; if a member of the audience expresses an opinion as to how the therapist could have acted, the director calls upon him to "show us." The taking on of a rôle is spontaneous; it is up to the director to determine when a person is sufficiently warmed up, and then to ask him if he will play the rôle.

The example given below was selected purely by chance; at this session a recorder was available to take complete transcripts of the meeting. It is a typical sociodrama with respect to organization; the problem originated from the audience, there was discussion, and rôle-reversals took place. It differs from others in the type of problem selected, that of a patient with disturbance in thinking and repetitious behavior which bothered those who came in contact with him.

³"Therapist" as used here does not refer to the specific functionings of a psychotherapist, but refers to the nurse, occupational therapist, or attendant who is performing the therapeutic function of making the patient secure in his surroundings and trying to bring him into contact with the reality of his hospital environment.

C. PROTOCOL

August 14, 1951: A group of approximately 35 people consisting of patients, affiliate nurses, social workers, volunteers, a social psychologist and a doctor.

Director: Many times in our work here at the hospital or outside there are things we don't understand. In the sociodrama we act out these problems, and in acting out the patient's rôle we get to understand better what their thinking might be. This is a medium to teach us how to handle various situations that may occur on the wards or in the Occupational Therapy Department. Following the rôle-playing there will be constructive discussion as we try to understand what the patient is going through.

I want you to think of someone you've met in the hospital who bothers you or whose behavior confuses you. Think of someone who represents a problem to you.

Bill (pt.):⁴ There's someone on Ward 2. (This patient has attended many sessions and needs no instructions to demonstrate. He immediately stands up, showing the problem patient's behavior.) "Hi, how are you?" Then he shakes hands (Bill explains). "Hi, how are you?" (extending hand to director). "Hi, how are you?" He does that all the time; he says, "Hi," and he shakes your hand, over and over.

• *Director:* Will someone approach this patient?

(Nurse gets up and quickly extends her hand before Bill has time to. Bill laughs and comes out of the rôle.)

Bill: She beat me to it. I can't understand the gesture. It's symbolic, but I can't understand it.

Director: What's he trying to do?

Bill: He's trying to get attention.

(At a previous sociodrama this patient had said that when he was depressed he would be so in an obvious manner; he wanted attention.)

Tom (pt.): (Volunteering from the audience) He wants to make your acquaintance.

Jonathan (pt.): He's insecure; he wants to make friends.

Director: Bill, show me how you would play him with Milton (a volunteer working for his M.A. in psychology).

Milton: Hi, how are you? What's bothering you?

Bill (in rôle): Nothing, Oh, you know, you know.

Milton: I'm not sure I know. Tell me (patiently).

Bill (out of rôle): I can't go on. I don't know what he'd say.

Milton (to Director): I've established rapport with this patient. He can verbalize; he's not mute or oververbose. I've had lengthy discussions with him. I accept the gesture of his extending his arm.

⁴All names used are pseudonyms except for Dr. Hyde's.

Director: Become the patient.

(Rôles are reversed. Bill becomes the therapist.)

Bill: Hi, how's it going?

Milton (unwillingly): Well. . . .

Bill (persistently): How's it going?

Milton: It's a long story. You wouldn't be interested. (Bursts into uncontrolled laughter, as the patient.) It's a long story. I'm going to get married Sunday.

Bill: Tell me about it.

Milton: It's a long story. I haven't spoken to her about it yet. (Laughs again. The inappropriateness of this bothers those who have met him.) It's a long story. I've got to get married by Sunday.

Bill: What's this long story you mention?

Milton: Oh, my father's no good. I came over here a long time ago, five years ago. He loves money. I tried to run away. I grabbed him like this, see (and he pulls roughly at Bill's coat collar). I ran away. I jumped back (lets go of Bill violently). I ran away. I gotta marry Mary. My mother's name is Mary; my grandmother's name is Mary; my sister's name is Mary.

Bill: When did you run away?

Milton: Oh, many times. I grabbed him like this, see (and repeats above performance with equal vehemence).

Bill (without emotion): Where did you go?

Milton: (Ignoring question and continuing with his own line of thought) My mother's name is Mary; my sister's name is Mary, (etc.).

Dr. Hyde (from audience): How did he make you feel, Bill?

Bill: I understood . . . he'd be frantic to make friends. Some of his gestures were like gestures I've made. They serve the same purpose, to get recognition. You can use different gestures to serve the same purpose.

Director: What happens when we can't understand these things? Betty, what upsets you?

Betty: He has an obvious need for somebody to make friends with. He loses many by his annoying way of pestering you.

Jerry (pt.): He seemed to have so much to communicate, and assumed Milton knew it already, or else wouldn't understand it.

Milton: I'd say to him, "But I don't know."

Dr. Hyde: What did you feel, Bill?

Bill: I was checking impulses, and so I couldn't appear overly sympathetic. It was hard to keep a straight face.

Miss Brown (nurse): You reflected his words back to him.

Milton: That's an important thing.

Director: Don't you feel insecure when you want to laugh at a patient?

Bill: I wanted to laugh over the "Mary's".

Milton: You should have; I would have laughed too, then.

Bill: I was afraid I'd hurt the patient.

Dr. Hyde: Can you do it again?

Bill (in rôle of therapist): Sit down, won't you? How's it going?

Milton: It's a long story, you know.

Bill: Tell me about it.

Milton: You ask me.

Bill (with mild impatience): Well, tell me from the beginning.

Milton: It's a long story. My mother's name is Mary. I gotta get married. Well, I got to go (rises as if to leave).

Bill (leaning forward): Don't you want to talk about it? Sit down.

Milton: My mother's name is . . . (etc.)

(Bill laughs outright at repetitions, and rôle playing ends.)

Milton (out of rôle): I didn't like that. If you had smiled first I (as patient) might have smiled too. I've smiled instead of laughing at the patient and he smiled back at me.

Director: What kind of a laugh is it?

Martha: Nervous.

Social Worker: A challenging laugh.

Bill: It might just be an expression of pleasure.

Harold (volunteer): He probably takes pleasure in being asked questions. By laughing he sugar-coats the pill. It's the same thing as the handshake. He wants the person to draw him out, but he doesn't want to burden the inquirer with serious trouble, and so he laughs and shakes hands.

Dave (social psychologist): Is it a compromise? Does he want to communicate, and is yet afraid of people?

Director: We're afraid of the laugh. We feel it's an hysterical thing, and like a manic's who wants to cry anyway. I feel tension there, that it's not pleasant.

Social Worker: Is he happy? I felt he was unhappy.

Betty: I felt he was bending over backwards to be pleasant.

Jonathan: I think it's his way of making friends, but covering his insecurity. He couldn't stop that laugh.

Harold: What would happen if someone said, "What are you laughing at?"

Dr. Hyde: Try it.

(Harold gets up in front of the group and approaches the patient who is standing, played by Milton.)

Harold: Hi, (extending his hand), I hear you like to shake hands.

Milton: (Refusing to take outstretched hand) Hi.

Harold: Would you like to sit down?

Milton: Why?

Harold (after a short pause): I'd like to.

(Milton breaks up rôle-playing.)

Milton (out of rôle): I didn't care what he wanted.

Harold (dismayed): What I expected didn't happen. I expected him to shake hands and he didn't.

Dr. Hyde: You showed us why he's bothersome; the unexpected upsets us.

Director: Do you have any more understanding of what he's doing? Would you be more tolerant of him?

Betty: Yes, definitely.

Director: Jerry?

Jerry: There must be a reason for his mistrust and reluctance to go beyond the handshake. The person is anxious to be genuinely friendly. It's important to get at the reason for fending off attachments and commitments.

Director: Social workers, how would you approach? Anyone willing to try?

(Social worker gets up and goes over to patient.)

Social Worker: Have a cigarette, Joe?

Milton: Sure, sure (exuberantly). Here, have one; have the pack. Here's a light too. (Pushes cigarettes into social worker's hand. Patient walks away.)

Social Worker: (calling after him) What do you smoke, Luckies? (In this scene there were no props, no real package of cigarettes. The social worker used this means of approach, and the acting proceeded as if there were a package of Luckies.)

Milton: (Returns, with his usual laugh. As if nothing had happened, he says) Hi, ya.

Social Worker: How are you? (patient laughs loudly) It's a beautiful day out. I like to get outside.

Milton: I can't get out.

Social Worker: No?

Milton: Ask Dr. ———. He knows all about it.

Social Worker: Are you sure? I've heard some of those doctors don't know everything.

Milton: Well, so long.

Social Worker: Why so quick?

Milton: I've got to go.

(*Rôle-playing ends.*)

Director: What do you think? (To social worker)

Social Worker: He wasn't too hostile. He offered me a cigarette.

Director: (To Milton) How do you feel?

Milton: I don't feel he was sociable. I didn't care what he wanted to do.

Dave: I had the feeling they were both doing the same thing.

Dr. Hyde: He (the social worker) was going as far as you were. . . . He reflected some of your hostile feeling.

Milton: He shouldn't have said that maybe the doctor doesn't know what's up.

Dr. Hyde: Let the social worker be the patient.

(*Rôle-playing starts again.*)

Milton: (To social worker) Hi, Joe. (Extends hand.)

Social Worker: (Laughing, in rôle) What are you shaking hands for?

Milton: (casually) Thought you wanted to shake hands today. No?

Okay. How've you been?

Social Worker: You know, you know.

Milton: Tell me about it. How's your father? (Milton maintains a casual attitude and a look of interest while the social worker feeds back the information he had learned about the patient earlier. Since he does not know the patient, however, he cannot continue beyond this point.)

(*Rôle-playing ends.*)

Director: Did you feel better being the patient?

Social Worker: Sure. You know why? You've got the situation under control when you're the patient. It's harder for the worker; he's at a disadvantage. (He said this with sincerity and the "audience" seemed to agree.)

Milton: (to audience) The first week I met Joe I greeted him casually. Afterwards I became friendly and I asked him if he wanted to sit down. The worker was too conscious of the handshake and the laugh and set it up as a barrier. Once the patient yawned when I was with him. I asked him if he got much sleep the night before, and when he said, "no" I asked him if he wanted to lie down now. He lay down, and we ended our conversation. (Milton implied that this was the natural thing to do, and that he had not forced the patient to continue.)

Rita (volunteer): How often do you see him?

Milton: Three or four times a week.

Rita: How long did it take for you to get rapport with him?

Milton: For the first week and a half I just said, "Hello." He was obnoxious on the ward and I thought I'd be casual and he might realize that I was being friendly. Later, he talked to me.

There were no more questions and this case was terminated.

None of the nurses participated in this sociodrama, as contrasted with the preceding one, when a depressed patient was the subject. A short description of this earlier experience furnishes some contrast. The nurses found it more difficult to empathize with this "patient" who showed disturbances of thinking than with the previous one manifesting distortions of mood. With the depressed patient, the larger part of the audience put themselves in that rôle; patients and personnel freely verbalized their depressed emotional state. One wanted to be sympathized with and paid attention to; one wanted others to feel depressed along with him; one wanted to be needled out of her depression; one wanted to be left alone because he was ashamed of it, and would come out of it "himself"; one wanted to "mobilize his resources"; one wanted someone just to be near him, and pace the floor with him.

The nurses, by reliving their own moments of depression (many were sitting in depressed attitude, heads bowed) were able to understand that in their own cases one approach might fail to evoke a response in them, and another might succeed. They realized, too, that for any one person, the same approach might not always get the same results. In the sociodrama, and on the wards afterwards, they are encouraged to try more than one approach. In the experience of one nurse, ignoring a patient resulted in the patient's coming out of her depression. This nurse had formerly felt that simply being with a patient, without verbal exchange, or ignoring the patient, were not active therapies; she experienced guilt feelings when this was all that she could do. Her own need to get the patient to do something had interfered with her recognition of the patient's need. With more awareness of what the patients needed, she was able to proceed without guilt, and with effective non-verbal communication.

D. RESULTS

It is evident from the content of the example itself that the audience realized that the superficial gestures of a repeated handshake and laugh were defenses to hide the patient's fears. These bizarre mannerisms were sufficient to antagonize those who came in contact with him on the ward, and to discourage further attempts at understanding.

It was decided to interview several of the persons present to determine what they had learned from the sociodrama. Those selected were two of the major participants, two who had taken part in the discussion but had not taken on a rôle, and two who were present but took part in neither the action nor the discussion.

From those who acted, the social worker and the volunteer, Milton, were interviewed because they represented two different types of psychiatric personnel. From among the discussants, those who had been most active in the discussion were chosen; coincidentally these were both patients, Jerry and Jonathan. Two nurses were selected at random from the non-participants.

1. *Actors*

The social worker had relieved much of his own feelings in the rôles of therapist and patient. A true catharsis took place when he said, "I've heard some of these doctors don't know everything." The hostility he felt for doctors, and his resentment at their fallibility were expressed. The worker felt afterwards that this catharsis as actor-therapist, where the responsibility for his actions were minimized since the "patient" was in reality not

endangered, would allow him more spontaneity in the future. His hostility would not be projected onto the patients. As a social worker, if he met a patient who was testing the worker's confidence in the doctor, he would reassure him that "although the doctor knows a great deal about you, there may be some areas in which you feel he has an inadequate knowledge." The worker would then ask the patient if he thought there was anything the doctor did not know about him.

Milton, the volunteer, was made aware that the handshake itself, the "barrier of receptivity" as he termed it, was what had been objectionable to others, and that this objection had to be overcome if rapport was to be established. He was able to generalize and see that other mannerisms in other patients were also barriers that must be reduced if anything more than superficial relationships are to be achieved.

2. *Discussants*

The two patients interviewed both gained something from the sociodrama. Jonathan, a convalescent paranoid schizophrenic, found the discussion most helpful to him as a testing ground for his perceptions. He gained reassurance, in his return to normality, that his contact with reality was no longer distorted when his explanations of the rôle patient's motives coincided with those of others. In the free and critical exchange of opinions, Jonathan felt that he could once more use his "cognitive faculties."

Jerry admitted that his own feelings had crystallized after watching this sociodrama. The statement "I've got to get married by Sunday" made him aware that he had felt a similar, although lesser, urgency in looking forward to his week-ends out of the hospital. The patient has had homosexual difficulties and now, convalescent, feels that he will be better able to make an adjustment when he gets married. He had never consciously thought that each week-end must be a decisive one, but he realized after seeing this feeling of urgency dramatized how inappropriate it was, and relaxed enough to take a step he had not made since he had been hospitalized—that of making a date for his next week-end out. His attitude was one of working toward a readjustment by dating, and it was not a rigid search for a wife as a final solution to his problems.

3. *Inactive Participants*

Joe's behavior differs from the normal more than does depressive behavior, and consequently empathy is more difficult. Neither of the two nurses interviewed could put themselves in the patient's place at all (i.e., I am Joe; how do I feel? I am laughing and extending my hand); both empathized

with the therapist. Nurse *A* felt that the understanding she acquired came primarily from the comments ventured by those who could, if only in part, feel what Joe was feeling: his fear, his desperation, his compromise behavior resulting from the fear of making friends and the desperate need to do so. Her understanding was derivative; it came from those who could directly understand the patient.

Nurse *B* felt that none of the "actors" who played Joe understood the patient sufficiently well to portray him convincingly enough for her to empathize with him; she mentioned that at previous performances she had been able to empathize when the director played a patient. This nurse, believing the patient to be inadequately presented, gained no understanding of him through her identification with the therapists.

E. DISCUSSION

Sociodrama is a teaching tool from which both patients and personnel can learn much. Although our focus is on the sociodrama as a psychiatric teaching tool, we should not neglect the important results it may have in terms of therapy. Teaching patients is at least one form of therapy. Understanding and tolerance for their hospital mates are fostered in these sessions, and their interpersonal relations, if improved, can be effective as ward therapy where one patient will assist another in recovery.

The atmosphere created within this group, a warm and spontaneous one, enhances the rapport between personnel and patients on the wards. Each becomes aware that the other is trying to help him, and is encouraged to increase his efforts. (Jerry, after watching Milton's performance as Joe, talked to this volunteer at great lengths about himself; a gulf had been bridged and confidence established on the basis of the sympathy shown towards a patient in the sociodrama.)

Mannerisms, which in a normal person would be sufficient to discourage attempts at friendship or even at conversation, are once more seen as part of the illness of the patient. It is difficult to sustain an enthusiasm for helping these patients when progress is slow, and often apparently non-existent. In these sessions nurses are reminded that the sick rôle, which has its advantages and privileges and makes heavy demands, is nevertheless defined as one needing of help.

When the dynamics of symptoms are discussed, a patient may become aware of similar symptoms in himself, and inquire further into his own psychological make-up. This often leads to enlightening psychotherapeutic sessions with the patient's doctor.

The frankness of the discussions at these sociodramas is indicative of the policy of the hospital in its attitude toward treatment of mental illnesses; there is no avoidance of calling things by their proper names. One of the steps toward recovery is the recognition, by the patient, that he is ill. An environment where the illness is kept secret or is distorted withholds from the patient the reality to which he is supposed to return, and as such is poor therapy.

Another function of the sociodrama is to develop a sensitivity to the needs of the patients. At one session the director played an hysteric with complaints of a muscle twitch in his arm, and a bad cold. In the case from which this was drawn, the patient had a "real" twitch, and treatment was given. The point was emphasized that it is easy to overlook physical complaints in a mental hospital. The patients all felt that they wanted definite action when some physical ailment bothered them, and that if they could see the nurse trying to get in touch with the doctor, for example over the telephone, they would feel relieved. The neurotic patient is ill-tolerated, and this session served to remind the nurses that no complaints can be dismissed with a shrug.

- Any situation that arises in the hospital which leads to interpersonal problems (personnel-patient, patient-patient, or personnel-personnel) can be dramatized in the sociodrama.

For example, the following difficult problems have been dramatized within the past few months: (a) preparing a patient for electric shock treatment, (b) understanding depressed, manic, seductive patients, (c) understanding the patient who disturbs other patients, (d) head nurse-student nurse relations, (e) nurse-attendant relations (f) convincing patients to eat or to take medicine, (g) getting patients to go to the O. T. Department. More complicated relationships have been clarified also, such as nurse-social worker-doctor relations or affiliate nurses' introductions to the ward.

There are four aspects of sociodrama which increase one's ability to cope with these situations: (a) Learning new and varied approaches to patients by seeing them dramatized in any particular interpersonal situation. These can be successfully imitated in the ward until one proves successful. This encourages flexibility on the part of personnel. It is a corrective of rigidities of attitude. (b) Learning from the patient himself, his actions or comments, what he prefers in a given situation, and applying this knowledge to a similar situation on the ward. This opportunity to listen to the recipient of the nursing skill rather than imposing the nurse's own judgment, is a basically democratic and equalitarian experience. (c) Gaining a more personal under-

standing of the difficulty one will face with a patient by identifying with the "therapist" during the sociodramatic session. This can be reduced to "what would I do in this situation?" By comparing what others do with what you do, and checking this against what the patients want, an efficient solution is reached. In this teaching method the fear of making mistakes, which limits experimentation on the ward, is eliminated. The opportunity to test oneself is provided, to experiment with fewer defenses than are fostered on the wards and which inhibit spontaneity.

One nurse had handled a depressed patient with kid gloves on the ward, trying to coax him to eat. In the sociodrama, allowing herself to express her real annoyance at him, she burst out at the rôle-patient, saying, "Come on, now, we're going to dinner." It worked in the rôle-playing situation, and it worked when she returned to the ward. (d) Achieving an emotional identification with the patient. This is both the most difficult and most valuable of the results. With it the nurse is able to "sense" what the patient wants, because she *is* the patient and therefore knows. By taking on the rôle of patient, by empathizing with him, the nurse begins to understand the functions of the patient's mannerisms and is able to fulfill the needs they symbolize.

There is a lesser intensity of motivation toward empathy when the nurse remains in the audience, but, to the extent that she can feel depressed or confused along with the patient, she has achieved some degree of empathy. This facilitates further rôle-reversals on the ward, and is a means of cultivating or freeing spontaneity. Too intense participation in a rôle that is personally meaningful to the nurse might only intensify her defenses. The diluted relationship of watching is as close as the nurse can come at the start to patient problems which mirror problems of her own that she cannot accept.

It should be noted that the characteristics of rôle-playing mentioned by French in industrial training are similarly present in psychiatric training. By dramatizing ward problems in the "irreal" setting of an auditorium, the threat of failure and ego-defenses against this threat are reduced for personnel, permitting more spontaneous interactions with the patients. The *concreteness and reality* of the actual ward situation is retained, however, by having patients present and participating instead of having abstract discussion and theorizing about a problem. The interpersonal strains must be handled in the "insistent present" where mistakes are corrected as soon as they are made, and difficulties which can only arise after an attempted solution has been begun are revealed. The *flexibility* of the technique per-

mits any phase of hospital activity to be dramatized, and a variety of solutions to be attempted. *Participation, involvement, and identification* allow catharsis of personnel's fears or hostilities, freeing them for spontaneity. Once suppressions become expressions, there is less likelihood that the nurse will project her own needs onto the patient; she is better able to empathize with him, thus becoming deeply aware of his own needs.

F. SUMMARY

1. Psychiatric personnel and psychotic patients were brought together in a rôle-playing situation for the purpose of educating the personnel in an understanding of the needs of the patients and in how these needs can best be satisfied.

2. Through empathic behavior with the patient and the therapist, and with the help of criticisms from the patient-personnel audience, a clearer understanding of the "rôle patient" was achieved. Empathy was facilitated by minimizing ego-threats and reducing ego-defenses in an "irreal" situation.

3. The patients, by their sincere efforts to help the personnel, stimulated the personnel to increased efforts. Tolerance to personality conflicts of both the patients and the personnel was raised.

4. A variety of personnel approaches to patients were tested sociodramatically. These approaches, the insights gained from them, and the practice in reversal of rôles were easily applied to ward behavior.

5. The cathartic action of rôle-playing freed the participants for more spontaneous behavior on the ward.

6. The sociodramatic technique is applicable to a large variety of interpersonal relationships in a psychopathic hospital which present problems.

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FACTORS RELATED TO RECIDIVISM IN ADULTS*

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A. THE PROBLEM

The purpose of this study is to compare recidivists and non-recidivists in order to discover (a) any educational, psychological, or environmental differences of significance that might exist as determined by the background of the prisoners, test data, personal histories, and their records for one year in the institution; (b) wherein recidivists differ from nonrecidivists; (c) factors linked with recidivism; (d) aids in predicting the prisoners' probability of social success on parole.

B. SOURCES OF DATA

The data were obtained mostly from the confidential files of San Quentin Prison. The records of those transferred to Folsom Prison were obtained from that institution. Information for those already paroled was available at the offices of the California State Department of Corrections in Sacramento.

C. METHODS OF PROCEDURE

White, American-born, adult prisoners of San Quentin who had been in the institution at least one year immediately after admission to the California penal system and who entered in 1946 were selected. Only such continuous data as would yield critical ratios and biserial correlations were used. Correlations were calculated for those factors showing significant differences at the .05 level when this was possible. Coefficients of contingency and chi-squares were computed for the significant factors. Tables were constructed utilizing the data in an effort to increase the reliability of prediction.

The factors involved, the number of cases, the means and standard deviations, and the critical ratios of the various distributions are the main data to be considered here. Other measures are included as indicated. The chief consideration is to give a clear picture of some 74 measures in relation to recidivism and nonrecidivism. In general the results were computed and rounded off before inclusion here.

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D. EDUCATIONAL INFORMATION

Any information relative to the educational background of a group of prisoners is of interest, particularly with regard to the possible effect of the school environment and its influence on crime and recidivism. These data are summarized in Table 1.

In computing the school grade completed, business college was considered

TABLE 1
EDUCATIONAL INFORMATION OBTAINED RELATING TO PRISONERS IN SAN QUENTIN

Factor	Nonrecidivists			Recidivists			CR
	Mean	SD	No.	Mean	SD	No.	
Highest School Grade Claimed Completed	8.8	3.06	379	8.9	2.82	289	— .20
School Credits Earned in San Quentin	20	10	273	20	10	197	.00*
Total Education	9.1	3.02	380	9.1	2.85	289	.00
Age on Leaving School	16.5	2.38	361	16.6	2.33	276	— .54
Stanford Achievement Total Score	8.1	2.63	357	8.1	2.51	278	.00
Paragraph Meaning	8.1	3.03	326	8.4	3.14	260	—1.15
Word Meaning	10.6	2.47	326	10.6	2.73	260	.00*
Language Usage	7.9	2.77	310	7.5	2.78	250	1.88
Arithmetic Reasoning	8.1	2.73	326	7.9	2.67	260	.84
Arithmetic Computation	6.3	2.38	326	6.3	2.36	260	.00
Literature	7.1	2.79	111	7.3	2.78	94	— .35
Social Studies I (History)	8.3	2.32	112	8.4	2.23	94	— .26*
Social Studies II (Geography)	8.3	2.68	112	8.3	2.45	94	.00*
Elementary Science	9.7	2.66	111	9.0	2.88	94	1.77
Spelling	8.2	3.05	321	7.8	2.63	257	1.60
Wide Range Vocabulary Test	66.3	15.03	70	69.8	13.22	60	—1.40
Moore's Arithmetic Reasoning Test	7.8	3.31	76	7.4	3.21	74	.48
The Spelling Test (Martin)	38.4	7.41	46	38.7	7.08	46	— .22

*Indicates use of the median and the semi-interquartile range.

Read table thus: The highest school grade claimed completed by 379 nonrecidivists had a mean grade of 8.8 with a standard deviation of 3.06 and the 289 recidivists had a mean grade of 8.9 with 2.82 as the SD, the critical ratio is —.20, is negative because the mean of the recidivists is larger, and is based on the difference between the means and the standard deviations. Read in like manner the other lines.

as secondary school work since such courses may be taken in the average high school if so desired. With regard to school credits earned in San Quentin, five institutional credits correspond to a high school course lasting one semester or, in other words, represent one-half credit. The curriculum included elementary and secondary work, trades training, institutional correspondence courses, private trade school correspondence, and high school and college correspondence courses from the Extension Division of the

University of California, Berkeley. Total education was computed from the highest grade completed plus the level attained in the institution if additional educational courses were taken. In no case was total education assumed to be less than the amount claimed on entrance though prisoners entering school were given work according to their achievement test scores. In many instances the prisoners started taking work above the level of their claimed attainment but in line with the results on the Stanford Achievement Test. Progress continued from that point, the highest full grade completed being the criterion. On the elementary level it was often necessary to take only a few subjects in order to raise the general level one full grade. In other instances certain subjects had to be taken before all the work on one grade level could be continued. Those achieving high school levels on the achievement test were allowed to do high school work. If the prisoner had previously completed high school courses, their credits in the prison high school were added to those already completed to compute the total education. The same was true for college courses or correspondence work of any type. Courses taken to provide a new hobby rather than for school advancement were not considered as advancing the total education attained.

Several forms of the Stanford Achievement Test were used, but they were combined since they are comparable, especially for group prediction. Each such score utilized as an average of the various subscores on the particular test administered. No prisoner professing illiteracy was given the Stanford Achievement Test nor were certain prisoners demonstrating inability to read or write very well allowed to take the examination. It will be noted that varying numbers of prisoners took the different subtests. This was partly due to the fact that different levels of the various forms of the test used gave different subscores, partly because certain subtests were not always administered, and partly caused by incomplete records.

The Wide Range Vocabulary Test, For B, was devised by C. R. Atwell and F. L. Wells and consists of 100 items. Although Table 1 shows the size of the sampling to be quite small in comparison to the entire group of prisoners being considered, the method of selection was random. Since only 46 first offenders and a like number of recidivists were given The Spelling Test authored by Martin, the small sampling method was used in computing the critical ratio.

The data relating to educational factors did not yield any significant differences between the recidivists and non recidivists. The discrepancy between claimed and actual school attainment of the two groups, as judged

by results on the Stanford Achievement Test, was roughly seven-tenths of a school year. This could be due to a slight tendency to prevaricate, to the fact that the average achievement of the group in relation to the number of years of school attendance was slightly below normal, or to the length of time elapsing between the last date of formal attendance and the taking of the test. This latter situation was one which did not exist for the group on which the test was standardized. In the Word Meaning and Elementary Science subtests both groups were at least one year above their total achievement test mean: in Arithmetic Computation and Literature they were considerably below this mean.

Perhaps more significant than the fact that no differences of any consequence were detectable between the two groups is the realization that 470 or 69.4 per cent of all the entering native-born white prisoners attempted to take some schooling, and 415 or 61.2 per cent completed and received at least five points credit. It would thus seem that the institutional school is reaching a large percentage of the prison population, and, as judged by those completing courses, meeting the needs of most of the prisoners. The efforts of the school to provide such a great variety of courses in the school itself through the work programs and through the various types of correspondence courses available is no doubt largely responsible for this favorable response. That much more can be done is obvious since 305 or 64.9 per cent of those starting to take school work completed 20 credits or less, which is equal roughly to one semester of high school courses. Admittedly much of this was of a nonacademic nature, taken in order to learn some desired and specific type of skill for which school credit was granted. The learning of some of these skills, for example handicraft, would enable the prisoner to earn money which could be spent as credit at the canteen or saved until his release and received in cash. The implication is obvious. If one penal institution for adults can touch so many of the inmate population through the educational system, many others can accomplish as much.

Certainly no one would suggest doing away with schools merely because some of their products are criminals and recidivists. Many more are worthwhile citizens. But it would seem that previous education in the subject matter fields does not help a prisoner rehabilitate. Perhaps more could be done in the public schools in the developing of correct attitudes and in attempting to improve personality and character. It is even more difficult to mould adults along these lines, but that need not deter prison educators from attempting to do so.

E. INTELLIGENCE

Table 2 shows the results of the intelligence tests administered. The Wechsler-Bellevue, an individual test, was given to practically every prisoner entering San Quentin who was available for testing. The Vocabulary subtest was not administered as a general rule, but it is not required in order

TABLE 2
INTELLIGENCE SCORES OBTAINED FROM PRISONERS ENTERING SAN QUENTIN

Factor	Nonrecidivists			Recidivists			CR
	Mean	SD	No.	Mean	SD	No.	
Wechsler-Bellevue Full Scale <i>IQ</i>	101.8	14.68	361	100.7	14.28	283	1.01
Verbal Scale	99.4	14.15	365	97.7	14.15	286	1.47
Information	9.9	2.92	365	9.8	2.87	285	.22
Comprehension	8.7	2.89	366	8.5	2.92	286	.82
Digits Span ($r_{bta} = .115$)	8.5	3.10	364	8.0	3.00	285	2.28
Arithmetic	9.2	3.24	363	8.7	3.45	284	1.86
Similarities	9.1	2.74	365	8.9	2.70	283	.94
Performance Scale	103.2	15.02	361	103.4	14.81	281	— .19
Picture Arrangement	9.6	2.58	361	9.5	2.52	279	.46
Picture Completion	10.1	2.90	363	10.3	2.90	279	— .93
Block Design	9.9	3.30	362	10.0	3.03	279	— .10
Object Assembly	10.0	3.07	361	10.1	2.98	277	— .03
Digit Symbol	8.7	2.77	363	9.0	2.90	280	—1.11
Revised Beta <i>IQ</i>	96.6	16.41	295	98.7	14.88	230	—1.59
Mazes	10.0	2.54	82	10.6	2.77	69	—1.37
Digit Symbol	10.7	2.32	82	10.8	2.70	69	— .26
Observation	11.0	2.72	82	11.3	2.55	69	— .86
Spatial Relations	11.1	2.91	82	11.1	2.91	69	.00
Picture Completion	12.0	2.64	82	12.3	2.12	69	— .66
Perceptual Accuracy	10.7	2.56	82	11.3	2.38	69	—1.55
Chicago Tests of Primary Mental Abilities							
Number	124.9	36.98	177	128.6	35.54	133	— .90
Verbal	100.3	20.40	179	104.3	18.20	133	—1.85
Spatial Relations	92.3	35.32	181	90.9	31.34	133	.38
Word Fluency	75.6	20.42	178	79.9	20.42	129	—1.48
Memory	15.8	6.04	175	15.8	6.36	128	.00
Reasoning	58.5	19.59	179	60.0	18.07	129	— .73
Otis <i>IQ</i>	90.1	18.09	91	94.0	13.85	88	—1.60

Read table thus: The mean Wechsler-Bellevue Full Scale *IQ* of 361 nonrecidivists is 101.8 with a standard deviation of 14.68; the mean of the 283 recidivists is 100.7 with 14.28 for the *SD*; the critical ratio, based on the difference between the means and the *SD*'s is 1.01. Read in like manner the other lines.

to derive a total scale result. It is from the subtests that the Full, Verbal, and Performance scales are interpreted. All the Wechsler subscores are converted scores since each raw score is converted to a scale ranging from zero to 18 points. Since the critical ratio of the Digits Span subtest proved

significant at the .05 level, the biserial correlation was computed to discover the extent of the relationship.

The Revised Beta is largely a nonverbal test, is composed of six subtests, and is standardized in essentially the same manner as the Wechsler-Bellevue except that the converted scores are weighted from zero to 16 instead of from zero to 18. Like the W-B, the Beta is especially designed for adults.

The Chicago Tests of Primary Mental Abilities comprise a battery designed for ages 11 to 17. The averages given are obtained from the raw scores of the six tests used. The Otis Intelligence Test is the last to be considered in Table 2. The Advanced Form was used in every case.

There were no significant differences between the recidivists and non-recidivists insofar as their *IQ*'s or total scores were concerned. This is in line with other more recent studies made on the subject and makes more meaningful the fact that the nonrecidivists scored significantly higher on the Digits Span subtest of the Wechsler-Bellevue. The critical ratio for the Digits Span was 2.28 with plus .115 as the biserial correlation and .041 as its standard error. The higher scores on the W-B were made on Picture Completion, Object Assembly, and Block Design; Digits Span was outstandingly low. On the Revised Beta the Picture Completion subscores were again relatively high.

Subtest scores on the Chicago Tests of Primary Mental Abilities are raw scores, and the points possible varies widely. In each case the mean of the nonrecidivists is given and followed by that of the recidivists with the approximate percentile rankings of the scores: Number Ability, 124.92 and 128.65 (63rd to 66th percentiles); Verbal Ability, 100.25 and 104.32 (62nd and 67th percentiles); Spatial Relations, 92.29 and 90.87 (36th and 55th percentiles); Word Fluency, 75.62 and 79.11 (55th and 61st percentiles); Memory, 15.79 and 15.81 (62nd percentile); and Reasoning, 58.45 and 60.02 (46th and 49th percentiles).

For institutional purposes it is obvious that the Wechsler and the Revised Beta Examination yielded more meaningful scores for these prisoners since they fall nearer the norms on the tests, making interpretation simpler and more accurate. On Thurstone's CTPMA the scores were considerably above the 50th percentile except for the Reasoning subtest. On the Otis, a highly verbal test, the means were at the lower end of the range considered normal and would cause the proportion of subnormal prisoners to appear unusually large.

Despite the fact that the Wechsler-Bellevue Intelligence Test yielded *IQ*'s close to 100, which is considered average, and despite the fact that the

W-B Performance scores were above 100 on the average while Verbal scores had a mean below this figure; the two groups considered were both below 100 on the Revised Beta Examination Total even though it was standardized in the same manner as the Wechsler. This might be due to standardization discrepancies or to the fact that the W-B has a higher possible scale value, thus tending to raise the mean by the addition of a few cases nearer the top of the distribution.

Intelligence *per se* does not discriminate between recidivists and non-recidivists. Not only that, but the evidence would indicate that the prisoners studied are of average intelligence insofar as the better tests administered can determine it. Both groups seem superior in performance as compared to verbal scores, but it is possible that a sex factor enters into this determination. The standardization groups were composed of both sexes; the prisoners included only males.

F. APTITUDES

The aptitude tests administered in sufficient numbers to be included in the study were three tests of mechanical aptitude and/or manual dexterity and a clerical aptitude test consisting of two parts, all shown in Table 3.

The data relative to the Bennett-Frye Test of Mechanical Comprehension

TABLE 3
APTITUDE TEST RESULTS OBTAINED FROM PRISONERS ENTERING SAN QUENTIN

Factor	Nonrecidivists			Recidivists			CR
	Mean	SD	No.	Mean	SD	No.	
Bennett-Fry Test of Mechanical Comprehension (percentile)	71.4	23.03	197	65.7	27.75	143	1.61*
Minnesota Paper Form Board	35.9	10.78	196	36.1	10.33	142	— .20
Purdue Peg Board							
Right Hand	16.0	2.13	305	16.2	2.27	234	— .71
Left Hand	15.7	2.02	299	15.4	2.05	232	1.45
Both Hands	13.0	2.00	299	12.9	1.82	231	.94
Assembly	8.7	1.53	298	8.7	1.56	233	.00
Minnesota Clerical Test							
Number Checking	86.9	27.50	195	87.0	24.46	158	— .03
Name Checking	81.8	28.11	190	80.5	28.52	157	.43

*Indicates use of the median and the semi-interquartile range.
Read table thus: On the Bennett-Frye Test of Mechanical Comprehension, using percentiles, the median (note asterisk at end of line) for the 197 nonrecidivists was the 71.4 percentile with a semi-interquartile range of 23.03; of the 143 recidivists tested the median percentile was at 65.7 with a Q of 27.75; the critical ratio, computed from the difference between the medians and the semi-interquartile ranges, was 1.61. Read in like manner the other lines.

is presented in percentiles due to the fact that scores were presented as raw scores, as percentiles, or both. It was possible to convert the raw scores to percentiles accurately, but the reverse was not true since a percentile often represented several scores. For the reason that percentiles were used, calculations were made on the basis of medians and probable errors.

The Purdue Peg Board scores are given on the basis of one trial for each subject on each subtest. Scores for the tests on the Right Hand, Left Hand, and Both Hands are based on the number of pins or pegs properly placed. When using both hands, they are used separately on the abovementioned subtest; the hands are used together for the Assembly subtest.

According to the Bennett-Frye Test of Mechanical Comprehension, the prisoners are considerably above average in mechanical aptitude. The semi-interquartile range is close to that of a normal group. The mean raw scores on the Minnesota Paper Form Board are at the 65th percentile on the test. It is obvious that the prisoners are definitely superior to the groups upon which these tests were standardized. This superiority might be due to the fact that the group consisted of mature males, many of whom may have followed mechanical work of some kind; to some selective factor in administering the tests; or to a real superiority as measured by such tests.

Scores on the Purdue Peg Board were nearer those made by the group of men upon whom the test was standardized. Results on the various subtests of which the PPB is composed are given with the means of the non-recidivists' scores appearing first: Right Hand, 16.05 and 16.18 (50th percentile); Left Hand, 15.67 and 15.42 (45th percentile); Both Hands, 13.05 and 12.89 (50th percentile); and Assembly, 8.71 for both (60th percentile). It is apparent that the mechanical aptitude of the prisoners is at least average, as determined by the tests used.

The means of the recidivists and nonrecidivists were at the 50th percentile for both the Number Checking and the Name Checking subtests of the Minnesota Clerical Test, indicating still another ability in which prisoners of San Quentin seem to be average.

G. PERSONALITY

The test of personality used most widely was the Minnesota Multiphasic Personality Inventory. T-scores are used throughout. An average is included which is obtained by taking the mean of the nine subtest scores not used for validating purposes and then averaging those means. The validating scores are the Question, Lie, K, and Foolish Questions scores. These results are not included since the great majority of them had T-scores of 50,

were to validate the other scores, and had quite limited variability of spread where variations occurred at all. The fact that less than 2 per cent of the prisoners made high validation scores shows how well rapport with the group was established. Due to skewness of distribution both the Hypochondriasis or H_a and the Schizophrenic or S_c scores in Table 4 are computed in terms of the probable error and the median. Biserial correlations are

TABLE 4
MINNESOTA MULTIPHASIC PERSONALITY INVENTORY SCORES OBTAINED FROM PRISONERS ENTERING SAN QUENTIN

Factor	Nonrecidivists			Recidivists			CR
	Mean	SD	No.	Mean	SD	No.	
Hypochondriasis— H_a	50.3	7.54	149	51.3	7.25	85	— .73*
Depressive— D ($r_{bis} = -.185$)	57.7	12.98	149	61.6	13.17	85	—2.23
Hysteria— H_y	58.2	10.39	149	58.4	10.39	85	— .10
Psychopathic Deviate— P_d ($r_{bis} = -.195$)	65.6	11.29	149	69.3	12.99	85	—2.22
Masculine-Feminine— M_f	54.6	9.53	149	54.1	9.21	85	.39
Paranoia— P_a	55.5	10.33	149	54.9	10.78	85	.36
Psychasthenia— P_t	51.9	11.11	149	53.3	11.84	85	— .91
Schizophrenic— S_c	48.7	5.94	149	50.3	7.13	85	—1.39*
Hyponia— M_a	53.7	10.55	149	55.5	11.58	85	—1.20
Average of Above Factors	55.6	7.70	149	57.4	7.88	85	—1.62

*Indicates use of the median and the semi-interquartile range.

Read table thus: On the Hypochondriasis factor of the Minnesota Multiphasic Personality Inventory the median-score of the 149 nonrecidivists was 50.3 with a semi-interquartile range of 7.54; the median was 51.3 with the Q of 7.25 for the 85 recidivists; —.73 was the critical ratio, this result being computed from the difference between the medians and the semi-interquartile ranges, as indicated by the asterisk. Read in like manner the other lines.

computed for the Depressive or D and the Psychopathic Deviate or P_d factors since in both cases the recidivists deviated significantly in the direction of abnormality as compared with the recidivists. In each factor a score of 50 is supposed to be average, and scores of 30 and below or 70 and above represent abnormality in the direction indicated.

On the Minnesota Multiphasic Personality Inventory two of the factors, the D or Depressive and the P_a or Psychopathic Deviate, were significant at the .03 level. Table 4 shows their biserial correlations are —.195 and —.185 respectively. Both measures have .082 as their standard errors. In each case the recidivists have higher scores or scores deviating more from normality on the average. The fact that both measures appear as parts of an inventory of only nine factors tends to indicate even more strongly their

significance. The D and P_d factors are the only ones yielding mean T-scores above 60 for either nonrecidivists or recidivists, and it would appear that they are in some way related to recidivism. The high D scores may have been due to a feeling of depression because of the realization that a prison term was facing the subjects, the recidivists having a fuller knowledge of the implications of the situation. Both groups had a tendency to deviate above the norms relative to the D and P_d factors, the recidivists deviating even more from scores considered normal. This tendency did not hold for all factors of the MMPI. The personality inventory seems particularly indicative of further study as regards the various scales. An item analysis would probably be even more fruitful in yielding material which might possibly discriminate between recidivists and nonrecidivists.

H. PERSONAL INFORMATION

Table 5 shows such personal data as were gathered on entrance or after a stay in the institution. No subjects under 21 were included. Had the recidivists proven to be considerably older than the nonrecidivists, the age factor was to have been controlled. Since existing differences were small and in the opposite direction, this was deemed unnecessary. In considering birth order and the number of siblings, half-brothers and half-sisters were

TABLE 5
PERSONAL INFORMATION SCORES OBTAINED FROM PRISONERS ENTERING SAN QUENTIN

Factor	Nonrecidivists			Recidivists			CR*
	Mean	SD	No.	Mean	SD	No.	
Age in Years	30.7	7.16	383	29.5	6.35	295	1.90*
Height in Inches	68.3	2.65	382	68.5	2.60	294	— .93
Weight in Pounds	153.0	20.30	381	153.9	20.10	295	— .54
Birth Order (discrete series)	2	1.50	367	2	1.50	273	.00*
Number of Siblings (discrete series)	4	2.00	372	3	2.00	283	5.06*
Minimum Sentence in Years	1.4	.55	380	1.4	.46	294	.00*
Sentence Set by Parole Board in Years	6.0	2.42	304	6.3	2.16	234	— 1.24
Number of Work Assignments in a Year	1	.5	383	1	.5	295	.00*
Number of Times in Infirmary in a Year	.7	.48	383	.7	.33	295	.00*
Punishment Record for One Year	.6	.31	383	.7	.46	295	— 3.36*

*Indicates use of the median and the semi-interquartile range.

Read table thus: The median in years of the nonrecidivists was 30.7 with a semi-interquartile range of 7.16, there being 383 such prisoners; for the 295 recidivists the median was 29.5 years with 6.35 as the Q; the critical ratio was 1.90 and was computed from the difference of the medians and by using the semi-interquartile ranges. Read in like manner the other lines.

also included. These two series are necessarily discrete. It is obviously impossible to be the 2 1/4th child born into a family or to have 3 1/2 siblings. Time on minimum sentence did not include those three prisoners receiving the death penalty from the sentencing courts. Time on maximum sentence was not considered due to the frequency of the life sentence as a maximum. However, this factor makes the California parole system a highly flexible one. The sentence set by the parole board was usually established after the prisoner had been committed at least ten months. A sentence might be considered at that time, the case might be deferred or postponed, or the sentence might then be set. Part of the sentence set, as shown in Table 5, could be served on parole. Work assignment changes might be affected by institutional reasons, the work, or the person involved. Punishment might consist of a reprimand or warning, suspension of privileges, loss of privileges, or placement in an isolation cell.

The nonrecidivists had a significantly greater number of siblings, the difference being discriminatory at the .01 level. Half-brothers and sisters were included since the number of children in the family was considered of greater importance in affecting the relationships of the individual in the home than closeness of blood ties. Identical medians were obtained by the writer for recidivists and nonrecidivists at the Kansas State Industrial Reformatory, Hutchinson (10, p. 79). The weight of research seems to verify that the number of siblings is a factor which discriminates between such groups and one which should be taken into consideration.

There were no differences of a significant nature shown in Table 5 between those with previous penal records and those with none as regards the median minimum sentence set by the sentencing court nor with the mean sentence set by the parole board. This indicates that previous commitment is not considered to any great extent in adjudging sentences of those appearing before the California Parole Board.

The median number of work assignments and of times in the infirmary are highly similar for the nonrecidivists and recidivists. This would indicate that the institutional job stability and health of the two groups are about the same, at least insofar as the first year's institutional record indicates. Insofar as institutional conduct was concerned, the median recidivist was relatively worse, that is, had a greater frequency of punishment over a period of one year's time. This has been verified by many other studies except that none of the others controlled the length of the time involved. The measure was discriminative at the .03 level of significance.

I. FURTHER STATISTICAL TREATMENT

The five measures yielding critical ratios significant at the .05 level were further considered. These were the Digits Span subtest of the Wechsler-Bellevue Intelligence Test, the P_d and D factors of the Minnesota Multiphasic Personality Inventory, the number of siblings, and the punishment record. The correlation of the D and P_d factors of the MMPI was .318 with a standard error of .059, making the relationship significant at the .01 level. The correlations of the D and P_d factors respectively with the W-B Digits Span were both of zero order. Attempts to keep the MMPI unrelated to factors affecting intelligence thus appear to be successful. The significant measures on the Minnesota Multiphasic seem to be somewhat interdependent. Because of extreme skewness of distribution, which necessitated the use of the median and the probable error, the number of siblings and the punishment record were not correlated.

Four-cell chi-square relationships were computed for the Psychopathic Deviate and Depressive factors of the MMPI to determine the extent to which an abnormally deviant score was connected with recidivism. The proportionally greater number of recidivists with abnormal P_d scores was significant at the .02 level. The differences between the groups on the D scores were not so attributable. A like treatment for those who had punishment records as opposed to those with no punishment records showed that the recidivists had a greater proportion of disciplinary treatment and that this was significant at the .02 level.

Coefficients of contingency were also computed after dividing the recidivists into three groups—no previous arrests, no jail, and jail. It was necessary to combine those with no previous arrests and no jail sentences into one group in computing the punishment record in order to have a sufficient number of cases in each cell. Chi-square was computed to determine if the C was significant. For the W-B Digits Span the C was .109; for the D factor of the MMPI it was .229; neither grouping proved significant. The coefficient of contingency for the P_d factor was .333, which was significant at the .01 level. The C was .225 and differentiated at the .05 level for the number of siblings. Punishment records yielded a C of .190, which was also significant at the .01 level. The directions of the measures were as previously indicated, each array of cells being arranged so that a move upward or to the right meant moving to a successively better cell.

Several methods of combining significant results were tried, the best being presented here. It consisted of combining according to standard scores. Mul-

multiple correlations were impossible due to the low correlations obtained. Scores from zero to 100 were possible. A good score was supposedly above 50 with the scores for recidivists or bad scores below that figure. The mean for the nonrecidivists was 53.29 points and 49.79 was the mean for the recidivists. The difference was significant at the .01 level, as was the biserial correlation of .387 obtained from the dichotomy. The biserial r was also significant but certainly not high enough for individual prediction. When used with the results found on other studies, this could no doubt be improved for predictive purposes.

J. SUMMARY

The study indicated that (a) education and educational test information did not discriminate between recidivists and nonrecidivists; (b) intelligence test scores did not differentiate between the two groups, the prisoners averaged very nearly the same as the general population, and the nonrecidivists scored significantly higher on the Digits Span subtest of the Wechsler-Bellevue; (c) mechanical and clerical aptitude tests did not yield any significant differences, but the prisoners were at least average in these abilities; (d) on the Minnesota Multiphasic Personality Inventory the Depressive and the Psychopathic Deviate factors discriminated significantly, with T-scores for these factors being higher in the case of the recidivists; (e) height, weight, minimum sentence, number of work assignments, and number of times in the infirmary did not differentiate significantly; (f) the median nonrecidivist had four siblings and/or half-siblings and the median recidivist three, this difference being significant at the .01 level and identical to results found by the writer at the Kansas State Industrial Reformatory, Hutchinson; (g) the median number of punishments for rule violations was significantly greater for those with previous penal incarceration, a result agreeing with many previous studies; (h) combining the five significant factors according to standard scores resulted in a scale further differentiating between nonrecidivists and recidivists.

K. CONCLUSIONS

The findings indicate that (a) there are factors which do discriminate between recidivists and nonrecidivists; (b) as more discriminative factors are discovered, methods of parole prediction may eventually become more accurate; (c) prisoners are a normal group as regards many measures; (d) attitudes, personality, and character traits seem most promising as fields for further investigation.

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RESULTS OF TESTING NEGRO CONTACT-SYPHILITICS WITH THE WECHSLER-BELLEVUE INTELLIGENCE SCALE*

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In 1949 in Georgia 10,445 cases of syphilis were diagnosed. The white population rate was 21 per 1,000, and the non-white rate was 138 per 1,000 (6). Although commendable progress has been made in venereal disease control, much remains to be accomplished.

A. PROBLEM AND PROCEDURE

In consideration of the foregoing, the following problems have been investigated: (a) the intelligence level of negro male contact-syphilitics as measured by Form I of the Wechsler-Bellevue Intelligence Scale; (b) the possible deterioration of the subjects as measured by the differential test-score method of the scale; (c) the intelligence level at which to present the venereal disease education program.

Apparently there has been little research on these specific problems.

The experimental group was composed of 52 negro males who were being treated for primary or secondary syphilis at the Alto Medical Center,² Alto, Georgia, during the period 17 March, 1950, to 12 May, 1950. It is assumed that these cases were a representative group since they were obtained on eight different weekly trips, and since they came from all the Venereal Disease Control Regions of the state. Participation was on a voluntary basis. Rapport appeared to be entirely satisfactory and the testing environment was excellent. All testing was done by the junior author.

The control group was composed of 52 negro males, 35 of whom were cases tested at the Guidance Center of the University of Georgia, and 17 of whom were attending a Vocational Training School. The latter were tested by the junior author. All members of the control group were veterans of the recent war.

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TABLE 1
CRITICAL RATIOS RESULTING FROM A COMPARISON OF EXPERIMENTAL AND CONTROL
GROUPS FOR AGE, EDUCATION, FULL SCALE *IQ*, VERBAL SCALE *IQ*,
PERFORMANCE SCALE *IQ*, AND DETERIORATION

	Experimental				Control				<i>CR</i>
	Mean	Median	σ	σM	Mean	Median	σ	σM	
CA	23.05	22.05	4.20	.58	26.12	25.40	5.14	.71	3.35
Ed.	6.12	5.71	3.36	.47	6.33	5.87	2.95	.42	0.33
FS	67.96	63.64	13.60	1.89	81.27	81.06	14.60	2.03	4.81
VS	70.21	69.16	10.90	1.51	82.48	80.50	12.55	1.74	5.33
PS	70.67	69.79	15.20	2.11	82.71	81.12	16.20	2.25	3.90
Det.	23.23	17.00	20.40	2.83	15.44	12.83	18.30	2.54	2.05

The subjects were paired on the basis of education, a critical ratio of 0.33 resulting from a comparison of the mean number of grades attended by the two groups. Each group had an average of a sixth grade education (Table 1). The groups were quite similar when compared on a job basis, using the classifications of the Dictionary of Occupational Titles. In each group, 69 per cent were unskilled workers. In the experimental group, 19.3 per cent were semi-skilled, 9.6 per cent skilled, and 1.9 per cent in the sales category. Among the control subjects, 17.3 per cent were semi-skilled, 11.4 per cent skilled, and 1.9 per cent in professional work.

The groups differed in age, the means being 23 and 26 years for the experimental and control groups (Table 1). Subjects of these ages are classified in the same group, however, by Wechsler (8, p. 66).

No cases were used where there was a history of neurosis, psychosis, epilepsy, or brain injury.

B. DISCUSSION OF RESULTS

The mean Full Scale *IQ* of the experimental group was 67.96, as compared with a mean *IQ* of 81.27 for the control cases (Table 1). The critical ratio, 4.81, is significant at the one per cent level. According to Wechsler's classification (8, p. 40) these groups would be described as Borderline and Dull Normal, respectively.

A comparison of the two groups on the basis of Verbal *IQ*'s likewise results in a statistically significant difference ($CR = 5.33$) in favor of the control subjects. Similar findings occur when Performance *IQ*'s are compared, the CR being 3.90 (Table 1).

Almost no difference was found within the groups between the Verbal Scale and the Performance Scale (Table 1). These results are consistent with the findings of Wechsler that there are minor differences between the

two scales in the Mental Defective and Borderline groups (7). In the present study, 44 per cent of the experimental group were classified as mental defectives, and in the control group 13 per cent were so classified. In the experimental group 25 per cent were recidivists, and for these cases the mean Full Scale *IQ* was 64.4.

MacPhee, Wright, and Cummings (4) concluded that the *W-B*, as used with a sample of southern rural negroes, proved to be a reliable measure. From the present study, however, it appears that the *W-B* norms are rather inapplicable to the subjects in the control group. The latter apparently would be regarded as being predominantly a normal group, according to the standards of their culture, and in terms of socio-economic criteria.

The significantly lower scores for the experimental group might be interpreted to indicate that syphilis was an important factor in producing the inferior results. If, however, these were actually persons of low mentality, they would have less comprehension of the dangers of the disease, and recall with less effectiveness information concerning it.

The school placement of the experimental subjects, the sixth grade, is misleading as a basis for the Venereal Disease Education Program. The latter probably would be most effective at the fourth or fifth grade level (8, pp. 104, 120) for the majority of the subjects.

When the experimental and control groups were subdivided into rural and urban categories, no significant differences were obtained within the experimental and control groups. Rural members of the control group surpassed urban and rural subjects of the experimental group, with four of the six *CR*'s reaching the 5 per cent level of significance. Urban members of the control group likewise surpassed urban and rural subjects of the experimental group, all *CR*'s indicating significance at the one per cent level (Table 2).

When the experimental and control groups were compared as to subtest scores, critical ratios favorable to the control subjects and significant at the one per cent level resulted from the following: Information, Comprehension, Digit Span, Similarities, Picture Arrangement, and Block Design. Significance at the five per cent level resulted from comparisons of the groups on the following: Arithmetic, Object Assembly, and Digit Symbol. Picture Completion, with a *CR* of 1.49, was of least value in discriminating between the two groups.

Wechsler's formula for the Mental Deterioration Index (*MDI*) was used (8, p. 67), with a resulting mean of 23.23 per cent for the experimental

TABLE 2

CRITICAL RATIOS RESULTING FROM COMPARISONS OF RURAL AND URBAN GROUPS WITH RESPECT TO: (1) FULL SCALE *IQ*; (2) VERBAL *IQ*; (3) PERFORMANCE *IQ*

		Experimental Urban			Control Rural			Control Urban		
		1	2	3	1	2	3	1	2	3
Exper.	1	.55			2.52			4.29		
Rural	2		.53			1.90			4.05	
	3			1.04			2.10			3.84
Exper.	1				2.31			4.24		
Urban	2					2.50			5.05	
	3						1.39			3.49
Control	1							1.55		
Rural	2								1.58	
	3									1.74

group as compared with a mean of 15.44 per cent for the control subjects (Table 1). Wechsler regards a loss greater than 10 per cent as a sign of "possible deterioration" and a loss of 20 per cent or more as indicative of "definite deterioration." The deterioration of the experimental group is significantly greater than that of the control subjects ($CR = 2.05$).

The two groups were subdivided into those showing (a) non-significant deterioration, 0 to 19 per cent; and (b) significant deterioration, 20 per cent and over (Table 3). The *IQ*'s of the control subjects were consistently higher. In an experimental-control comparison of those cases having 20 per cent or more deterioration, all *CR*'s are indicative of significance at the one per cent level (Table 3).

Despite the findings just cited, it seems illogical to regard the *MDI* as adequate proof of deterioration in the pathological sense. As shown in Table 3, 39 per cent (20 cases) of the control group were classified as hav-

TABLE 3

CRITICAL RATIOS¹ RESULTING FROM COMPARISONS OF THE *IQ*'s OF SUB-GROUPS HAVING DETERIORATION OF: (A) 0-19 PER CENT; (B) 20 PER CENT AND OVER

		Experimental				Control				<i>CR</i>
		Mean	Median	σ	σM	Mean	Median	σ	σM	
(A)	FS**	72.0	70.2	13.9	2.63	83.2	82.8	15.3	2.75	2.90
	VS	74.7	73.0	10.8	2.00	85.3	84.5	13.7	2.42	3.21
	PS	73.3	75.7	16.9	3.14	83.4	78.5	18.1	3.20	2.11
(B)	FS	62.7	62.3	11.2	2.33	78.2	78.2	12.4	2.77	4.17
	VS	64.8	64.5	7.9	1.65	77.7	76.5	9.1	2.03	5.00
	PS	66.6	68.2	14.3	2.98	81.8	82.7	13.0	2.91	3.68

*For Group A, Experimental, $N = 29$; for Group A, Control $N = 32$; for Group B, Experimental, $N = 23$; for Group B, Control, $N = 20$.

**Abbreviations are: FS, Full Scale *IQ*; VS, Verbal Scale *IQ*; PS, Performance Scale *IQ*.

ing "definite deterioration" (20 per cent or more), although the subjects were presumed to be a normal group, according to their cultural and socio-economic standards. Only 18 cases (35 per cent) in the control group showed no deterioration. As indicated, the mean deterioration for control cases was 15.44 per cent. Further possible evidence against the validity of the *MDI* in the present study may be found in the fact that for both groups the three tests on which the subjects scored highest were "hold" tests. For both groups the poorest subtests tended to be tests which, according to Wechsler, "do not hold up with age" (8, p. 64). The only exception was the fact that information ranked lowest for the experimental group. The order of difficulty for the control cases showed marked similarity to that of experimental subjects. The order of difficulty for the experimental cases was: Object Assembly, Picture Completion, Comprehension, Picture Arrangement, Block Design, Digit Symbol, Similarities, Digit Span, Arithmetic, and Information.

The *MDI* results for the control subjects of the present study cannot logically be attributed to organic factors. Such outcomes for one group force one to regard with doubt the *MDI* findings for the experimental cases. It may well be, as Rabin and Guertin (5, p. 232) have indicated, that the deterioration index may be "the result of a pattern to be found in a variety of conditions not related to old age," or other types of "organics."

Machover (3), in a study of southern negro criminals, noted that the test patterns associated with marked cultural restrictions are similar to those which differentiate normal persons from individuals showing pathological impairment of mental functioning. It seems highly probable that this explanation may be appropriate for the subjects of the present study, in preference to Wechsler's interpretation of the *MDI*.

C. CONCLUSIONS

The following conclusions, applicable to the cases included in this study, appear to be justified:

1. In terms of Wechsler's norms the syphilitic group is classified as Borderline, the mean *IQ* being 68, and the control group is Dull Normal, with a mean *IQ* of 81. It is doubtful that the Wechsler norms apply to the control subjects, who apparently were normal according to their cultural and socio-economic standards.

2. Statistically significant differences exist between the syphilitic and non-syphilitic groups in Full Scale, Verbal Scale, and Performance Scale *IQ*'s. The causes of the differences are yet to be identified.

3. When Wechsler's Mental Deterioration Index was used the control group showed "possible deterioration" and the experimental group "definite deterioration," the latter having a significantly greater amount. It is suggested that marked cultural restrictions, rather than pathological impairment of mental functioning may account for the outcome.

4. The subjects in both groups are especially inferior in general information, in arithmetical reasoning, in ability to detect similarities, and in memory span. Control subjects significantly surpass experimental subjects in nine of the 10 tests. An educational program for the latter group probably would be most effective at the fourth or fifth grade level.

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CHOOSING BETWEEN THE SEXES ON A SOCIOMETRIC MEASUREMENT*

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A. OBJECT OF STUDY AND DESCRIPTION OF MEASURING INSTRUMENT

The present study is principally concerned with the extent to which boys chose girls and girls chose boys on a generalized sociometric type measurement designated "How I Feel Toward Others."

This scale consists of two degrees of acceptance, one "Don't Know" category, and two degrees of rejection.

The first and highest degree of acceptance is called *Best Friends*. This category is defined by four sub-statements which emphasize that "your best friends" are the ones you play with a lot and have fun with, the ones you help whenever you can and share your things with, the ones you go places with and talk to a lot, and the ones whose homes you go to and who come to your home.

The second level of acceptance is called *Other Friends*. This category is also defined by four sub-statements which emphasize that "your other friends" are the ones that you sometimes play with but you do not always have fun with, you are nice to them most of the time but you seldom share your things with them, you sometimes go places with them and talk with them but not very often, and you go to their home and they come to your home only on rare occasions.

In the *Don't Know* category the children designate the ones whom they do not know well enough to give a rating to.

The No. 4 category on the scale, which is the milder of the two degrees of rejection, is worded as follows: "Children I know but who are not my friends." The descriptive statements under this heading emphasize that "you seldom play" with these children, you do not get along very well with them when you are around them, you do not talk to them or go places with them unless it is necessary to be polite, and you do not like some of the things they do and the way they act at times.

The final category, and the most extreme degree of rejection, is worded: *Children I do not want to have as friends*—as long as they are like they

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are now. The descriptive statements under this heading emphasize that "you avoid playing" with these children and you never choose them as partners for a game, you sometimes quarrel or fight with them, you never go places with them or talk to them unless you have to, and you dislike very much some of the things they do and the way they act at times.

The five major headings on this scale were determined by the writer and his graduate class in Sociometry as being the most appropriate for the kind of measurement desired for school grades three to seven. The descriptive sub-statements, however, were obtained from a questionnaire submitted to 450 school children in three North Texas communities in Grades 4, 5, 6, and 7. This questionnaire consisted of four sections.

The first section asked the children to state how they felt and how they acted toward other children whom they regarded as their *best friends*. When the results were tabulated it was found that there were 1,303 responses to the Best Friend category which were definite enough to be used. Of these, 71 per cent were sufficiently similar to be grouped into the four sub-statements which are listed above. Responses which were considered too vague to use were such statements as "I like him a lot," "We are good friends."

The second section dealt with *Other Friends*, and in this category there were 612 usable responses. Of these, 74 per cent were concluded to be sufficiently similar to be grouped into the four sub-statements given above.

The third section was designated *Not My Friends*, and in this category there were 744 definite statements. Of these 75 per cent were considered to be of sufficient similarity to be classified into the four descriptive statements given on the scale.

Finally, the fourth category included statements under the heading *Do Not Want As A Friend*, and under this heading there proved to be 651 scorable responses. Of these 73 per cent were considered to be sufficiently similar to be classified under one or more of the four descriptive statements listed on the scale.

It would have been possible to have had more than four sub-statements under each of the positive and negative steps if less frequently occurring responses had been used, but it was thought that four was sufficient to help differentiate the various steps, and that it was best to have the same number under each major heading in order to equalize this factor.

All the classifying was done by the writer and two graduate students. The chief problem in this classification of the children's responses was that of agreeing on which statements meant very much the same as other statements that were worded differently. We checked each others' work and

did not include an item in a particular category unless two of the three judges concurred. Generally the agreement was unanimous.

B. PROCEDURE IN ADMINISTERING THE SCALE

In administering the "How I Feel Towards" scale each child is given a list of names of all the pupils in his room, and each one also has a copy of the scale which he reads silently while the teacher reads it aloud. After the reading of the scale he is directed to place a one, two, three, four, or five to the left of each name on his list—these numbers to correspond in meaning to the five major headings on the scale. He puts a six to the left of his own name. From this procedure it is evident that every child indicates a feeling response toward every other child in his class.

C. RELIABILITY AND VALIDITY OF THE MEASUREMENT USED

Questions in regard to the reliability and validity of the "How I Feel Towards Others" scale naturally arise.

The matter of the reliability of sociometric scores is best answered by data on the constancy of such scores over various time intervals. In Table 1 such data is given for the scale used in this study.

The above data show a fairly high degree of constancy even over a period of several months. Also all the coefficients are highly reliable statistically.

TABLE 1
CONSTANCY OF SCORES ON CHOICES RECEIVED ON
TWO SUCCESSIVE ADMINISTRATIONS OF THE
"HOW I FEEL TOWARD OTHERS" SCALE

Classes	N	Time interval	Rho correlation between successive group ranks
4th	20	3 days	.87±.04
4th	38	2 days	.94±.009
4th	34	6 days	.89±.03
4th	22	6 weeks	.68±.08
4th	29	3 months	.74±.06
5th	33	3 days	.93±.01
5th	25	1 day	.88±.02
5th	14	2 months	.72±.09
5th	29	3 months	.86±.03
5th	21	6 months	.68±.08
5th	30	3 days	.89±.01
6th	16	3 months	.62±.12
6th	36	3 months	.89±.02
6th	21	3 months	.67±.05
6th	26	4 months	.81±.05

This statement, however, should not be interpreted to mean that a high degree of constancy in sociometric data is necessarily desirable. As socializing influences are introduced into a group we would expect some new social relationships to be established. The extent to which this happens would largely determine the extent to which there would be shifts in sociometric ranks. However, since inter-personal feelings are never static, we would expect to find some alterations with time in sociometric positions even in groups in which no special socializing efforts are made.

It will be evident that the constancy coefficients given in Table 1 apply only to constancy of group ranks and not to constancy of choosing between particular individuals. This, however, is not a serious matter from the standpoint of the present discussion since individual relationships are not being considered but only one sex group in relation to the other sex group.

In reference to the validity of sociometric scores, Pepinsky (10) has made the point that such data is characterized by an important difference as compared with the usual psychological test in that we are not using the measurement as an indirect index to a particular type of ability or trait but we are measuring the variable under study directly. In other words, the feelings which one person expresses toward another are not an index to something else against which they must be validated. These feelings carry their own validity for the particular persons concerned.

In sociometric measurements, as in all measurements involving the co-operation of the subjects, we must assume that these subjects give honest or sincere responses if we are to accept the data as valid. As far as the school children who were subjects in this study are concerned, the writer knows of no reason to think that they did not give honest and sincere responses to the scale used. The coöperation of the teachers was in all cases secured, and these teachers administered the scale in their respective classes.

All the groups used in this study had been together for at least six weeks when the sociometric measurement was obtained. However, approximately 80 per cent of them had been together for at least four or five months. It is not believed that differences in time during the school year when the scale was administered has any significant bearing on the results obtained. This statement is supported by the fairly high test-re-test correlations reported above for the "How I Feel Towards Others" scale, and also by the fact that the majority of both boys and girls in all groups had been together in the same class since starting to school.

D. SUBJECTS USED IN THIS STUDY

The approximately 2,370 children who served as subjects in this study were all white pupils in classrooms in Denton, Texas, and in five other towns in the North Texas area (under 20,000 population) and in the city of Ft. Worth. Nearly all the measurements were obtained in 1948 and 1949.

E. SCORING OF THE SCALE

A weighted scoring has been adopted for the "How I Feel Towards Others" scale, consisting of a:

- +2 for a number 1 choice
- +1 for a number 2 choice
- 0 for a number 3 choice
- 1 for a number 4 choice
- 2 for a number 5 choice

Thus each subject's score is the algebraic sum of the positive and negative feelings expressed toward him by all the other members of his group.

All the figures to be given in this report show the extent to which each sex chose the other sex in terms of maximum possible choosing. By "maximum possible choosing" is meant the score which one sex could have given the other sex if all the members of this sex group had chosen all those in the other sex group in first place. For example, it would mean that all the boys in a particular class would give all the girls a No. 1 choice on the scale used. When this "maximum possible score" was determined it would then be divided into the actual score which the girls in this class did give to the boys.

In one fourth-grade class consisting of 11 boys and 17 girls the boys could have given the girls a total of 374 points by the weighted scoring given above. This is obtained as follows: Each boy could have given the girls a total of 2×17 or 34 points. Since there were 11 boys the group total becomes 11×34 or 374.

Likewise, the girls could have given the boys a total of 374 points, since each girl could have given the boys 22 points (2×11), and all the girls could have given a total of 17×22 or 374 points.

It will be noted that the "maximum possible score" is always the same for both sex groups.

In the fourth grade just referred to the actual algebraic score given by the boys to the girls was 52 points. Dividing 374 into 52 we have 14 per cent, to the nearest whole number. This means that the boys in this group chose the girls only to the extent of 14 per cent of maximum.

The girls in this fourth grade gave the boys positive and negative choices which resulted in an algebraic score of 22. Dividing 22 by 374 we have 6 per cent. This means that the girls gave the boys only 6 per cent of what they could have given them if all the girls had given all the boys a first place choice on the "How I Feel Toward Others" scale.

All of the inter-sex choosing data given in the tables below were obtained in the manner just described. In the tables below it will be noted that the findings on each group are not given. Instead, only figures on range and central tendency for each grade level are given. This is true also of the figures on reliability of the difference between the two sex groups. This condensation of the data was felt to be necessary to conserve space.

F. PRESENTATION OF DATA

Table 2 shows that the average number of boys and of girls was closely similar in the 11 third grades studied.

The figures on range show greater variability for the boy-girl choices, but this finding is counteracted by the fact that standard deviation figures (not given in Table 2) showed practically no difference in central tendency between the two sex groups, since the median *SD* for the two groups was only one point apart.

TABLE 2
DATA RELATIVE TO INTER-SEX CHOOSING IN ELEVEN THIRD GRADES

Ave. No. of boys	Ave. No. of girls	Boy-girl choices			Girl-boy choices			CRs of differences in inter-sex choosing		
		Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of CRs	Ave. of CRs	Md. of CRs
15.4	13.8	—07 to 59	26	25	04 to 44	20	16	.2 to 4.1	1.45	1.1

The data on averages and medians both show the boys choosing the girls to a greater extent than the girls chose the boys. In eight out of the 11 classes the boys' "per cent of maximum" scores were a little higher than were the corresponding figures for the girls.

When we turn to the critical ratios column, however, we find that most

of the obtained differences were statistically unreliable since the two central tendency figures are both low. As a matter of fact, only one group showed a difference that resulted in a *CR* greater than three, using the formula

$\frac{\text{Diff.}}{\text{SE of the diff.}}$. This *CR* is the 4.1 given above as the upper point in the range. In two additional groups *CRs* of two were obtained.

The chief conclusion to be drawn from the above data is that, although there was a group tendency in the direction of the boys showing more positive feelings for the girls than the girls showed for the boys, in the great majority of the groups the sex differences were not large enough to carry statistical significance.

Table 3 shows that the number of boys and girls studied was closely similar.

TABLE 3
DATA RELATIVE TO INTER-SEX CHOOSING IN NINETEEN FOURTH GRADES

Ave. No. of boys	Ave. No. of girls	Boy-girl choices			Girl-boy choices			CRs of differences in inter-sex choosing		
		Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of CRs	Ave. of CRs	Md. of CRs
14.7	15.1	-13 to 53	29.5	32	-13 to 53	20.2	21	00 to 4.7	1.16	.6

Also, the figures on group per cent ranges are quite similar for the two sex groups. This lack of difference in variability is further emphasized by the finding that the median *SD* for the respective sex groups was only two points apart.

Both average and median figures show clearly, as in the third grade, a tendency for the boys to give the girls more positive choices on the "How I Feel Toward Others" scale than is true of the girls voting for the boys. The difference in median scores is especially evident. In 15 out of the 19 classes the per cent scores for the boys choosing girls were a little higher than were those for the girls choosing the boys.

However, when we turn to the critical ratio data, we again see that most of the differences found in the fourth grades were too small to be statis-

tically significant, since the central tendency figures are both quite small. Only one group produced a *CR* that was greater than 3—this one being the upper point in the range given in Table 3. Only three others produced a *CR* that was 2 or larger.

From these findings we must conclude that even though there was a group tendency for the boys to show more acceptance attitudes toward the girls than vice versa, the differences in inter-sex choosing were, in the large majority of the groups, too small to afford a confident basis for generalizing to other similar populations.

Table 4 shows that the number of boys and girls included in the 17 fifth grades studied to be very similar—even more so than on the two previous grade levels.

TABLE 4
DATA RELATIVE TO INTER-SEX CHOOSING IN SEVENTEEN FIFTH GRADES

Ave. No. of boys	Ave. No. of girls	Boy-girl choices			Girl-boy choices			CRs of differences in inter-sex choosing		
		Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of CRs	Ave. of CRs	Md. of CRs
15.6	15.5	04 to 54	24.2	22	04 to 44	23.8	23	00 to 2.66	.96	.6

In regard to range, the two sex groups are exactly the same on the lower end, but are 10 points apart at the upper end. That the general picture in regard to variability for the two sets of data is one of similarity is evidenced by the fact that the figures for the median *SD* for the two sex groups were found to differ by only one point.

In contrast to the two lower grade levels, the figures on the central tendency of the inter-sex choosing do not show a tendency for the boys to vote more positively for the girls. Both average and median scores are very similar for the two sex groups.

The critical ratio data reveals that not one of the 17 classes showed a completely reliable difference in the choosing between the sexes, since the highest *CR* is less than .3. The central tendency figures for these ratios emphasize that the differences found in most of the groups were very small. In only three groups was the *CR* 2 or more.

TABLE 5
DATA RELATIVE TO INTER-SEX CHOOSING IN NINETEEN SIXTH GRADES

Ave. No. of boys	Ave. No. of girls	Boy-girl choices		Girl-boy choices		CRs of differences in inter-sex choosing		
		Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of CRs
15.4	14.0	08 to 48	30.9	31	-07 to 44	20.1	18	.3 to 5.4
								Ave. of CRs
								Md. of CRs
								2.0
								2.1

Table 5 shows that the number of boys in the groups studied averaged slightly more than the number of girls.

In total range the boy-girl and girl-boy choices were quite similar. However, the standard deviation figures for the girls' choices were found to run considerably higher than those for the boys' choices. In the case of the girls the median *SD* for the 17 groups proved to be 27 as compared to 18 for the boys. This shows that in most of the groups studied the girls' choosing of the boys was more variable than the boys' choosing of the girls. This is the only grade level in which a marked difference in the *SD* figures was found. This greater variability of the girls' choices may be related to the greater physical maturation of girls over boys—a condition which is likely to become generally evident for the first time at this level. There may be a tendency for the more sexually mature girls to respond less favorably to the boys of their own age level—most of whom are considerably less advanced in physiological maturation. At the same time there are other girls who are not yet pubescent and whose attitude toward the boys remains about the same as before. These conditions would make for greater variability of choices on the part of sixth-grade girls.

When we look at the figures on central tendencies we find evidence that girls did respond less favorably to the boys than did the boys to the girls. In fact the differences here between the sex groups in their central tendency figures (both average and median) are greater than on any other grade level. In 14 out of the 19 groups the boys gave the girls a greater preponderance of positive choices than they received from them.

However, when we turn to the critical ratio columns we see that in most

of the groups the differences in inter-sex choosing were too small to be statistically significant, since the central tendencies figures are both less than 3. In only four classes were *CRs* of 3 or more obtained, and in one of these (contrary to the above-mentioned trend) the girls gave a greater proportion of positive choices to the boys than they received from them. In six other groups in which the boys' choices outweighed those from the girls' *CRs* of 2 or larger (but less than 3) were found.

From these generally small and statistically unreliable differences the conclusion must be drawn that the two sexes did not differ markedly or consistently in their feelings toward each other even on this sixth-grade level where the largest differences were found.

In the six seventh grades included in Table 6, the average number of girls slightly exceeded the number of boys.

TABLE 6
DATA RELATIVE TO INTER-SEX CHOOSING IN SIX SEVENTH GRADES

Boy-girl choices					Girl-boy choices					CRs of differences in inter-sex choosing	
Ave. No. of boys	Ave. No. of girls	Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of CRs	Ave. of CRs	Md. of CRs	
14	15.4	11 to 57	27.8	22.5	06 to 58	30.3	31.5	.3 to 2.6	1.0	.9	

In total range of group per cents the inter-sex choosing was quite similar. When variability was measured by standard deviation it was also found that the two sex groups were quite similar since the median *SD* for the two distributions was only two points apart.

On the basis of both measures of central tendency the extent of girls choosing boys exceeded that of the boys choosing girls. This is the first time this trend has appeared. It was true of four out of the six groups tested. However, a glance at the data on critical ratios shows immediately that none of these inter-sex differences proved to be statistically significant. Only one *CR* was higher than 2.

In spite of the fact that the obtained differences were small it is particularly worthy of note that on the seventh-grade level there is a complete re-

versal of sixth-grade findings. Whereas among the sixth graders the girls choose boys less than on any other grade level, now—among the seventh graders—they are found for the first time in this study showing more favorable responses toward the boys than the boys show toward them. The fewer number of seventh-grade as compared with sixth-grade classes available (6 compared with 19) limits the possibility of drawing more certain implications from this finding.

Table 7 shows the average number of boys and girls in the seven classes studied to be very similar.

TABLE 7
DATA RELATIVE TO INTER-SEX CHOOSING IN SEVEN EIGHTH GRADES

Ave. No. of boys	Ave. No. of girls	Boy-girl choices			Girl-boy choices			CRs of differences in inter-sex choosing		
		Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of group per cents	Ave. of group per cents	Md. of group per cents	Range of CRs	Ave. of CRs	Md. of CRs
16.5	16.1	11 to 39	26.4	23	18 to 39	26.4	27	00 to .3	.41	.4

In total range of group per cents the two sex groups are very much alike—the upper points in the two distributions being exactly the same. Also there was only one point difference between the median *SD* for the two sex groups.

From the central tendency figures it is evident that the average per cent of choosing of the two sexes for each other is exactly the same. The median figures are only four points apart, with the girls having the higher score.

In both range and central tendency the critical ratio figures are the lowest obtained on any previous grade level.

Thus on the eighth-grade level we find the two sex groups holding inter-personal attitudes toward each other which are of almost equal intensity.

It should be noted, however, that the actual "per cent of maximum" choosing between the two sexes amounts to only approximately one-fourth of maximum, and this amount is not much different from that found on the lower grade levels. It is slightly less than found on the seventh-grade level for both sexes, and a little less than found for the boy-girl choosing on the fourth- and sixth-grade levels.

G. COMPARISON WITH 12 ADDITIONAL CLASSES

As a part of his master's thesis, Edward Tiffin obtained inter-sex choosing data from 12 classes in Denton, Texas, using the "How I Feel Toward Others" scale. These 12 included four fourth grades, four fifth grades, and four sixth grades. None of these classes was included in the classes reported on above although many of the same pupils were involved, since Tiffin obtained his data about 18 months after the preceding data was gathered. In only one of his 12 classes was a statistically reliable difference found. This was in a fourth grade and the difference was in favor of the girls choosing the boys. These findings support those reported above.

H. COMPARISON WITH OTHER STUDIES

In his *Who Shall Survive* (p. 24), Moreno (9) reports data on inter-sex choosing in grades from kindergarten through the eighth grade in a public school in New York City. The pupils gave choices in respect to which others in their respective rooms they would prefer to sit by, and which ones they would most like to have remain in their rooms. He found the highest degree of inter-sex choosing to be in the kindergarten and first grade—the percentages in these grades being 25 and 27 per cent respectively. In the remaining grades the per cents of inter-sex choosing varied from 2.5 to 16.5 with a median of 4. From the first grade through the fifth boys chose the girls to an extent which was about twice as great as the girls chose the boys, but in the sixth, seventh, and eighth grades the choosing between the sexes was about equal.

Due to differences in methodology it is not possible to draw close comparisons between Moreno's findings and those reported in this study. It is of interest, though, to note that he too found fairly equalized choosing between the sexes in the upper grades. Apparently the tendency of boys in the lower grades to choose girls more often than the girls choose boys was considerably greater in Moreno's population than found in the present study, since he states that his boy-girl choices were about twice as extensive as his girl-boy choices.

Other studies by Bronfenbrenner (4), Seagoe (11), and Tuddenham (12) have shown very small degrees of sociometric choosing between the sexes.

I. EFFECT OF NUMBER OF BOYS AND OF GIRLS IN EACH CLASS

Although it might seem that the extent of choosing between the sexes would be materially affected by proportional representation of each sex in a particular room, this did not prove to be true. A detailed statistical study

of this matter was not made, but enough checking was done to lead to the conclusion that the extent of inter-sex choosing was not much affected, if any, by the number of boys and girls in each room. In the first place, the sex representation in most of the groups was approximately the same—differences of four or less being most frequent.

In 11 classes in which there were five or more boys than girls, the inter-sex choosing ran as follows: In four classes the girls gave the boys a higher per cent vote, in three classes the boys voted more for the girls, while in the remaining four the per cent of choosing was practically the same (four points or less difference).

In 11 classes in which the girls out-numbered the boys by five or more the inter-sex choosing ran as follows: In five classes the boys gave higher per cent scores to the girls, in two classes the girls gave more positive votes to the boys, while in the remaining three the per cent scores were practically the same.

Some of the largest differences in the choosing of one sex by the other were found in classes in which the number of boys and girls was very closely balanced.

J. COMPARISON WITH INTRA-SEX CHOOSING

Although the primary purpose of this report is to present data on inter-sex choosing it will be appropriate to review briefly the extent of intra-sex choosing among the groups studied. These data will emphasize the sharp contrast which nearly always exists between these two categories of interpersonal attitudes.

In calculating the results for the intra-sex data the same procedure was followed for determining "maximum per cent score" as was described above for the inter-sex data. Illustrating in the case of the boys, the following formula was used: Number of boys minus one times the number of boys times two. The "minus one" is necessary because no boy votes for himself. Thus in one class in which there were 14 boys the maximum per cent score which the boys could give to themselves was $(14 - 1) \times 14 \times 2 = 364$. This number was then divided into the actual algebraic score which the boys gave to themselves. This procedure was followed in each classroom for both boys and girls.

After the "maximum per cent" scores for all the classes on a particular grade level were calculated, the median per cent score for each sex group was determined. These median scores ranged from 45.5 for the boy-boy choices on the third grade level to 59 for the boys choosing boys on the fifth

grade level. Nearly all the median scores fell between 50 and 59. There was not a consistent or large difference in favor of one sex over the other.

When these figures are compared with those given above for inter-sex choosing it is evident that the extent of accepting attitudes *within* each sex group was, on an average, approximately twice as great as *between* sex groups.

K. SOME EDUCATIONAL IMPLICATIONS

From the findings of this study we may list two educational implications.

First, it seems that our public schools and other educational agencies are developing boys and girls in such a way that there is not a marked difference in their inter-personal attitudes toward each other, nor is there a marked difference in the extent of accepting attitudes which each sex group holds toward its own members. It seems fair to assume that these results are due to the common cultural patterns and values under which our sex groups are matured, and to their frequent association on equal terms in schools, churches, neighborhood groups, and elsewhere.

It is readily admitted that different results than those reported in this study would likely be found with a different form of sociometric measurement, particularly one which involved criteria which favored one sex or the other, such as an outdoor competitive situation which would favor boys or an indoor social situation which would likely favor girls. The chief advantages of the "How I Feel Toward Others" scale for the present study are that it taps general as opposed to specific attitudes, that it does not favor one sex group over the other, and that it provides exactly the same measurement for all groups studied.

The second educational implication arising from this study is that both inter-sex and intra-sex attitudes appear to be much more a product of particular group situations and of social learning than of constitutional factors. This statement appears justified on the basis of the wide variability of group "maximum per cent scores" for each grade level as shown in Tables 2 to 7. For example, Table 3 shows that one fourth-grade group of boys gave the girls in their class an algebraic score of -13, while another fourth-grade group of boys, at the opposite end of the range, gave their girl classmates a corresponding score of 53. This is a difference of 66 percentage points. An even greater difference of 71 points is shown in this same table to be the total range between the lowest and the highest group per cents in the choosing of boys by girls. The lowest ranges for both boy-girl and girl-boy choices (28 and 21) are found on the eighth-grade level, but even here the differences in group per cents are marked enough to emphasize how much one

class of eighth graders may differ from another one in their attitudes toward members of the opposite sex who are sitting in the same room with them.

Also the data on intra-sex choosing shows much variability in the extent to which each sex group revealed accepting attitudes toward themselves. For example in one sixth-grade class the boys gave themselves a "maximum per cent" score of 70 while the girls in this same room chose each other only to the extent of 41 per cent of maximum. In another sixth-grade class equally contrasting results were found in which the girl-girl choosing was much higher than the boy-boy. In still another sixth-grade class the intra-sex per cent scores for both sexes were far above the median scores given above, being 75 and 64 per cent for boy-boy and girl-girl choosing.

From these wide differences found in the groups studied it seems appropriate to conclude that the volume of accepting inter-personal attitudes which exist between and within sex groups in any particular classroom is much more likely to be due to such factors as level of socio-economic home background, the extent to which boys and girls have enjoyed pleasant associations in groups, the extent to which they have been separated in seating and eating situations, and the extent to which teachers and other adults have encouraged or minimized sex differences by direct and indirect teachings, rather than to constitutional differences or to so-called natural stages of sex development.

While it is true that inter-sex attitudes cannot be assumed to be a sure index to the way the sexes will actually behave toward each other, these attitudes must be assumed to be one important variable determining such behavior. If it is true, as the data of this study show, that these attitudes are due far more to social and cultural factors than to constitutionally determined behavior patterns, then the possibilities of directing these attitudes through educational efforts is emphasized.

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THE ENVIRONMENT AS A DETERMINANT OF BEHAVIOR*

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A. INTRODUCTION

Perhaps one of the outstanding weaknesses of contemporary psychological theory is the relative neglect of the environment by many of the most influential theoretical viewpoints. Stimulus-response psychology, for instance, tends to assimilate the entire environment, insofar as it is relevant to behavior, into the term "stimulus" and perhaps also, as in the case of reinforcement theory, "goal objects"; for the most part, many environmental features tend simply to be taken for granted. Yet many aspects of the environment, when we single them out for attention, are not assimilable into any proper definition of either "stimulus" or "goal objects"; and, as for taking many of them for granted, it sometimes pays to take systematic account of even the obvious. Of course, not all theoretical viewpoints are equally neglectful of the environment. Tolman (7) and Lewin (6), for instance, have made important contributions in this regard; but even these contributions have tended to become obscured by the more challenging aspects of Tolman's and Lewin's systems, and it is likely that they are little known by those who are not thoroughly familiar with these systems.

It may be timely, therefore, to pull together a schema for taking better account of the environment than is customary. It is all the more timely inasmuch as psychology is coming to be called on more and more in connection with important personal and social problems. If, as I believe, a proper appreciation of the rôle of environmental factors is important to rat psychology, it is ever so much more so in a humanistic psychology—i.e., a psychology concerned with human beings in the conduct of the important affairs of their lives. Not only are human environments more complex, but the behaviors with which the rat psychologists are most concerned take place in the controlled environments of the laboratory, whereas the behaviors of greatest concern to the humanistic psychologist take place in freely variable (from the viewpoint of the psychologist) environments. With the greater complexity of human environments they have perhaps more of a rôle to play, and with their free variability they have, so to speak, a more active rôle.

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Moreover, whereas one can perhaps afford to underestimate the importance of factors under one's control, it is an error of much graver consequence to underestimate the importance of factors beyond one's control.

I take as my point of departure Koffka's (5) distinction between the "geographical" and the "behavioral" environments. The former refers to the objective physical and social environment in which the individual is immersed. The latter refers to the environment as it is perceived and reacted to by the behaving individual; it may bear little resemblance to the geographical environment, being an organized "interpretation" of the latter based on recollections, anticipations, perceptual distortions and omissions, and upon reasonably correct perceptions. The behavioral environment deletes from and alters, as well as adds to the geographic environment. The point of Koffka's distinction is that behavior can be far more meaningfully understood if it is related to the behavioral rather than the geographic environment.

Important as the concept of the "behavioral" environment may be to a humanistic psychology, it calls for more or less intimate knowledge of the behaving individual before we can resort to it. Nor does it tell us what the objective environment does to the behaving individual. It is the latter problem that concerns me here. Moreover, there are factors in the geographic environment which influence behavior even though they do not belong in the behavioral environment as Koffka conceives of it. Thus, the chair I am sitting on and the desk I am using have an important facilitating rôle in the writing of this paper even—and perhaps especially—while I am not aware of them; but, in Koffka's usage, they belong in my behavioral environment only while I am aware of them.

Our starting point must be the "geographical" environment. Needless to say, however, the "geographical" environment can be looked at from many points of view. For my present purpose, I want to consider it from the viewpoint of a psychologically sophisticated observer who presupposes psychological individuals with wants and desires, but who is not at the moment particularly concerned with any one person. It seems desirable, therefore, to make an additional distinction to the one drawn by Koffka: the *geo-behavioral* or the *objective-behavioral* environment—i.e., the geographical environment looked at from a point of view that is concerned with understanding behavior.

The major features of the geo-behavioral environment, as I see them, will be outlined in the remainder of this paper.

I am primarily concerned with these features as they present themselves, rather than with how or why they came about. All of them are, of course,

conditioned by factors of social organization and by one's place in the social order (in society at large and/or in some particular group) as well as by factors of the geo-physical environment. I am confident that our observation would be sharpened if we understood something of their genesis, but I do not feel called upon—in my rôle as a psychologist—to trace their origins; this may be left to fellow workers in other disciplines. Still, apart from the question of the origins of the patterns of stimuli, goal objects, etc., we must be prepared to take note of their significant correlations with various social variables. Thus, there are often important differences in the nature and distribution of stimuli acting upon, say, the two sexes or members of different social classes. Similarly with regard to the available goal objects, the unavoidable noxiants, the behavior supports and constraints, and directors. I am here, however, concerned only with the broad outlines of the schema and must content myself with calling attention to the existence of such correlations.

Let me take up these features of the geo-behavioral environment one at a time.

B. STIMULI

A stimulus is here regarded as whatever is capable of initiating a change in the stream of activity; it is, so to speak, a release or trigger mechanism. Although light and sound of certain wave lengths and other relatively simple forms of transmitted energy are stimuli, a "stimulus" as here defined is not necessarily reducible to such elementary components. A complex social situation, for instance, operating as a Gestalt, may function as a stimulus. Except for its initiation, the response is not viewed as a function of the stimulus;¹ the course of the response is seen as a function of physiological and motivational factors, but it is also viewed as a function of the other environmental factors outlined in this schema.

Consider for instance the case of a housewife who has been reading a "sexy" novel. That night her husband is surprised by the unprecedented fact that it is she who initiates amorous advances and that she turns out to be quite amorous indeed. It seems that "sexy" novels are often effective trigger mechanisms for sexual behavior; but, to account for the course of this particular response as distinguished from an alternative response of, say, lascivious phantasies, it seems relevant that factors other than the stimulus were operative, such as the fact that the husband was not away on a business trip and that he did not prove to be sexually impotent.

¹Cp. Holt's discussion of the "recession of the stimulus" (3, pp. 75-82) and also his definition of "behavior" (*ibid.*, pp. 153-171, esp. p. 164).

Or take the case of a man living in a generally frustrating environment. He comes home one evening to an unusually unsatisfying dinner. He sits about muttering to himself, suddenly announces, "God damn the Jews!" and takes himself off to join an anti-Semitic organization with headquarters in the neighborhood. To understand this behavior we must not only take into account the fact that the frustration of an unsatisfying dinner may set off seemingly irrelevant behaviors and the motivational and perceptual background into which this stimulus obtruded itself, but also that the course of the response is a function of such environmental factors as that there was an anti-Semitic organization in the neighborhood, that Jews constitute a convenient scapegoat in this man's social environment, that his wife would take no guff from him, etc.

To speak of a stimulus as something which can (i.e., as something which in the past has been observed to) set off a response is not to preclude the possibility that the same object (e.g., a pretty girl) or situation may sometimes function not only in the rôle of stimulus, but also as a goal or noxious, as a support or constraint, and/or as a director. It is the sometimes concurrence of these various rôles in the same object that has led to what I believe is the common practice of overburdening the stimulus concept with the function of determining, as distinguished from initiating, responses. The important point is that these various rôles are always distinguishable and are often carried by distinct objects or situations.

It should not be supposed that relegating stimuli to the rôle of initiating responses makes them unimportant features of the environment. After all, responses still have to be initiated. But, apart from the rôle that stimuli play in relation to specific behavior, the over-all stimulus properties of an environment may have important psychological consequences. A relatively stimulusless environment, for instance, is, I believe, an important factor in neurasthenia: the individual is thrown upon his self-stimulating (although we have concentrated upon stimuli which emanate from the environment, we have not precluded stimuli which originate within the organism) resources which may prove insufficient for the initiation of activity. Conversely, an overstimulating environment often generates profound problems of self-management; one of the things we must learn, for instance, is not to respond to distracting stimuli. Less extremely, the stimulus characteristics of an environment may render certain motives more, or less, salient than they might otherwise be. Thus, environments differ in the relative number of stimuli evocative of, say, aggressive, fear, patriotic, religious, or sexual response tendencies.

Before leaving the subject of stimuli, I must note the partial circularity of the definition with respect to response. One important consequence of this circularity is an interaction between the individual and the potentially effective stimulus: whether a form of energy, or an object, or a situation stimulates a particular individual depends in part upon the characteristics of the individual and upon his momentary state. If we were to pursue this interaction, we would find ourselves in the "behavioral" environment in the full sense of the term. Since I have here limited myself to the geo-behavioral environment, however, I deliberately did not go the full circle in the definition of "stimulus" ("that which induces a response" rather than "that which *can*—has previously been observed to—induce a response"). The effect of the restraint is that we can identify a stimulus in the geo-behavioral environment, and do so without waiting until after the event when we have already noted that the "stimulus" actually stimulated. Still, we can take certain broad characteristics of individuals into account without leaving the geo-behavioral environment. Thus, if there are significant sex differences with respect to the way in which certain objects or situations act as stimuli, we can speak of the geo-behavioral stimulus environment of men as distinguished from the geo-behavioral stimulus environment of women. There is also much that we can discern of the stimulus world of any particular individual as contrasted with that of any other particular individual without making a thorough psychological analysis of either individual.²

C. GOAL OBJECTS AND NOXIANTS

"*Goal objects*" refers to objects or situations which can serve as need satisfiers and "*noxiant*s" refers to objects or situations which can produce pain or unpleasantness.

²Needless to say, similar considerations apply to the other terms in the schema. The distinction between "behavioral" and "geo-behavioral" environments is, therefore, not rigid. Depending on how much we know about the correlation between types of environments and types of subjects and on our ability to select maximally differentiable types, the usage of the term "geo-behavioral environment" without detailed reference to any particular individual will run the gamut from the "average" geo-behavioral environment characteristic of a total society to that characteristic of a highly differentiated segment of that society. Similarly, with respect to any given individual, the more thoroughly we observe him in his environment (or the more complete our data are from other sources), the less distinguishable does what we observe as "geo-behavioral" environment become from the "behavioral" environment. But, on a conceptual level, the "geo-behavioral" environment never becomes equivalent to the "behavioral." The latter can only be observed through the eyes of the behaving individual, although it can often be reconstructed by the independent observer. The former can be observed directly by an independent observer; but the point is that the more he knows, the greater are his powers of observation.

Many psychologists, being almost exclusively concerned with such matters as the manner in which stimulus-response connections are established, tend to take goal objects for granted and have shown little interest in examining various environments, as such, from the point of view of what they have to offer by way of goal objects and/or noxiants. Yet this seems to me to be an important source of insight into behavior. Environments differ in the abundance or scarcity of goal objects and noxiants, and in the relative abundance of those related to certain needs as compared to others. Goal objects can, of course, be arranged along continua from the point of view of how well they satisfy particular needs; and environments differ in the relative availability of goal objects from different sections of these continua. The various patterns of availability of goal objects and unavoidability of noxiants have important consequences for behavior. They play a rôle, for instance, in determining the relative order of importance of different motives,³ in establishing attitudes of withdrawal (as when there is little in life worth striving for), and in generating competitive social relationships.

It may be noted that an individual's orientation to goal objects involves a future reference and, hence, that a given goal object need not actually exist and may indeed never come to be (as when one fails to bring about some desired situation). In such an event, we tend to get into the "behavioral" environment in the full sense of that term. The observer is, however, not limited to existing goal objects, but may also "discern" potential need satisfiers—e.g., in relation to Joe Doakes who is still going to school, a diploma inscribed "Joseph Doakes." The objectively observable environment offers—or fails to offer—potential as well as existing goal objects.

The present schema is concerned with goal objects that may be located in the observable environment, but this concern is not intended to preclude "ipsative" goals that refer only to the self—e.g., a change in one's personal characteristics. There are also goals which have both ipsative and environmental connections—e.g., a change in one's status—but these may usually be described as part of the environment, e.g., there is a status position in the environment the attainment of which can satisfy certain needs.

³Many psychologists are interested in arranging motives in the order of their importance, but resort to non-psychological criteria of importance. Thus, they may work with the essentially sociological criteria of universality or dependability, or with biological criteria of necessity for life and health or closeness to physiological processes. Relatively little attention has been paid in such listings to such psychological criteria of importance as how much of our behavior is devoted to given motives and what we are prepared to sacrifice in order to satisfy them. The need for air is certainly universal and essential for life; but it is certainly relatively unimportant, except in special cases, from the viewpoint of proportion of behavior devoted to it, precisely because of the availability of the goal object.

D. SUPPORTS AND CONSTRAINTS⁴

Supports refer to those features of the environment which make particular behaviors feasible. *Constraints* refer to those features of the environment which preclude particular behaviors, make their occurrences less likely, or limit their variability.

As Tolman (7, p. 85) has noted, the "fact that supports, and not merely stimuli, are needed for the actual going-off of any act . . . is a feature about behavior which orthodox psychologies, both stimulus-response psychologies and mentalisms, seem hitherto to have overlooked." Unhappily, since the publication of Tolman's book in 1932, this fact has continued to be overlooked.

1. *Discriminanda*

The properties of objects or situations whereby they can be discriminated from one another. A most important sub-class of discriminanda consists of *cues*, namely, discriminanda which offer relevant information—i.e., discriminanda which exist not in and of themselves but in systematic relationships to other discriminanda, means-end paths, etc. Thus, an apple may be green; the color is a discriminandum. But inasmuch as the color of apples is also correlated with their taste and digestibility, their color is also a cue.

As used here, a "cue" is an objective feature of the environment; it may or may not be utilized as such by the behaving individual and does not depend for its existence (though it may for its use) on the learning process or on some immediate and direct inference. The utilization of cues may depend on learning and/or upon immediate and direct acts of inference; but this feature of the environment sets limits upon what may be learned or inferred, and it makes certain learnings and inferences more difficult than others. Whether the individual perceives the relation between the color and taste of certain types of apples, or not, the existence of this correlation presents him with a quite different environmental situation than would be the case if there were no visually perceptible correlates of the taste of apples. Environments differ in the number and variety of cues that they afford and behavior often goes astray, not because of the incapacities or contrariness of individuals, but simply because of the absence of sufficient cues, because cues are not sufficiently prominent to be discerned, because of misleading cues, or simply because what is conventionally supposed to be a cue does not correspond to an

⁴For all the liberties I have taken with their concepts, my indebtedness in this section of the schema to Tolman (7) and Lewin (6) must be so obvious that I shall attempt no detailed annotation.

objective geo-behavioral environmental state of affairs (as when a parent's threats are not consistently followed through).

Note also that "cue" is commonly, but not here, used as a synonym of "stimulus" or, more precisely, as a composite concept of what are here separately defined as "stimulus" and "cue." All discriminanda, to be sure, are mediated by stimuli (the reflected light in the case of the green apple); but we are here interested in them, not because of this fact, but rather because of their rôle as supports.

2. *Manipulanda*

The properties of objects or situations whereby they can be handled in certain ways. These, of course, set limits as to what can be done or accomplished.

3. *Means-End Paths*

The steps one must take or things one must do in order to attain particular goals or avoid particular noxiants. An important class of means-end paths depends on instrumental and personal aids. By extension, the characteristic patterns of human interdependencies are of the utmost importance among the social aspects of any geo-behavioral environment. Means-end paths define conditions for attaining goals and may vary considerably from environment to environment. For instance, in some settings the routes to goal objects are individualistic and competitive whereas in other settings they are collective and coöperative.

Means-end paths also vary with respect to such characteristics as: (a) *Distance* (the number of intervening steps that must be taken), (b) *Quickness* (the time needed to reach the goal), (c) *Freedom from barriers or hurdles*, and (d) *Viscosity* (the degree of resistance to locomotion offered by a path apart from the specific barriers it contains). Thus, two paths to a goal (or to two equivalent goals) may be equally short, one may be (because of more or less automatic compensatory adjustments) no faster than the other, both may be free of specific barriers, and yet one may call for greater effort than the other. Where there are no clear-cut and separable goals, the concept of "viscosity" can also be applied to a total situation, there being more or less ease of locomotion in it; e.g., an informal setting is less viscous than a formal one.

The most obvious type of constraint is *the absence or inadequacy of supports*.

4. *Pseudo-Means-End Paths*

What look to be means-end paths, but actually lead elsewhere than to the indicated goal or contain some impermeable barrier or insurmountable hurdle. I refer to the pseudo-means-end paths as constraints because their sheer presence may mislead the individual and hence lessen the likelihood that he will actually move toward his goals. The existence of pseudo-means-end paths accounts for much wasted effort. There is, of course, no sharp line of demarcation between true and pseudo-means-end paths.

5. *The Concurrence of Contravaluant Properties in Goal Objects (or Means-End Paths to Goal Objects) and of Provaluant Properties in Noxiantes (or Means-End-Paths Away from Noxiantes)*

Objects, etc., may involve features which entail unpleasantness or pain for behaving individuals; we may refer to these as *contravaluants*. Other features are need-satisfying; we may refer to these as *provaluants*. The concurrence of contravaluant and provaluant properties in goal objects or noxiantes and in means-end paths to or from them may be described as *incidental* rewards and punishments. However, it seems best to reserve "rewards" and "punishments" for that which is actually rewarding and punishing, something which depends on the reaction of the individual as well as on what the environment offers. The terms "contravaluants" and "provaluants" like the terms "goal objects" and "noxiantes" are intended to be neutral with respect to any particular individual's actual reactions. They refer to environmental offerings.

The point is that "good" things may be more or less inseparably associated with "bad" and vice versa. Thus, medication may bring welcome relief, but nonetheless have a very bad taste in the taking; pie may be very palatable, but also highly calorific; and a young lady may be "beautiful but dumb" or vice versa. The effect of such concurrences is that they act as constraints with respect to behaviors that might otherwise take place.

E. DIRECTORS

Features of the environment which tend to induce specific directions of behavior.

• 1. *The Spatio-Temporal Patterning of Stimuli, Goals, and Noxiantes, Supports, and Constraints*

Such patterning, which is to a variable extent under deliberate social control, acts as a director in a variety of ways. Thus: (a) The absence of means-end paths to particular goals at a particular time may tend to direct

behavior to alternative goals. (b) Meeting up with a particular goal object at a particular time may divert the course of behavior into a new direction. (c) Objects and situations are often so ordered along means-end paths that they become goals and behavior is directed toward them; i.e., given certain ends, certain means-to-ends themselves become ends simply because of the structure of the environment. And so on. To explain why a certain individual became a psychologist, for example, we may have to take into account the fact that he could not get into medical school; the goal objects he encounters in the course of, or concurrently with, his career as a psychologist may make a medical career relatively less attractive even though an opportunity to enter medical school later opens up; and he may have studied French for no better reason than that this was required for the degree in psychology.

2. *Physical and Social Currents*

a. *Normative factors* which conceal possibilities of variant behaviors, control the availability and perceptibility of supports and constraints, control the patterns of concurrence of provaluants and contravaluants, limit the number of choice points and the number of possible choices, and define and structure environmental situations.

b. *Patterns of concurrence of social norms.* Most noteworthy are:

(1). *Patterns of co-existing contradictory norms* as elaborated, for instance, by Horney (4)—e.g., the coexistence in our society of the norms of "brotherly love" and of competition.

The individual who encounters such contradictory pressures must resolve them in some way, by withdrawal, by gravitating to those areas where the contradictory pressures are most unequal, by vacillation, by yielding to one of the pressures in one area and to the second in another area, etc. However he resolves them, it is obvious that an environment with such contradictory directors is more difficult in this respect than one without them.

(2). *The hierarchization of social values* which occurs in at least two ways: (a) Where conflict between norms arises, one is expected to take precedence over the other and (b) where the individual cannot live up to the most valued norms, he is expected at least to live up to the next most valued, etc.—e.g., a club member is expected to participate in the committee work or at least come regularly to meetings, or at the very least pay his dues.

(3). *The differentiation of rôle-defined behaviors in various contexts.* Bateson⁵ (1, 2), for instance, has pointed to two important patterns: (a)

⁵Bateson does not sharply distinguish between the environmental pressure to con-

Symmetrical rôle-defined behaviors, where *A* is expected to act toward *B* in the same manner as *B* is expected to act toward *A*—as in the case of two friends; (b) Complimentary rôle-defined behaviors, where *A* is expected to act toward *B* in a manner that is qualitatively different from, or opposite to, the way in which *B* is expected to act toward *A*—as in the case of employer and employee or a Negro and white in the South. From the viewpoint of the geo-behavioral environment of either *A* or *B*, it makes a difference whether the other individual actually acts in the rôle-defined way. The more important point, however, is that both *A* and *B* are subjected to pressures to act in their rôle-defined ways.

F. THE ENVIRONMENT AS A WHOLE; GLOBAL FEATURES

Up to this point I have broken up the geo-behavioral environment into various components; but there are also global properties of these environments, which are perhaps Gestaltish functions of these components. Some environments are discernibly more *difficult* than others, for example; some are discernibly more *secure*, etc. On another level, environments may be described as more or less *organized* or *disorganized* and as more or less *stable* or *unstable*. From still another point of view, the available goal objects, the unavoidable noxians, the absence of goal objects, the supports and constraints and the directors, all of these taken together, determine the *number of degrees of freedom* available to the individual in the geo-behavioral environment. There are also psychological constraints⁶ which limit the number of degrees of freedom, but I am here concerned with only the geo-behavioral environment. However, the concept of degrees of freedom, whether applied to the geo-behavioral or behavioral environments or to the individual-in-the-behavioral environment, has meaning only with reference to particular motives or sets of motives: the environment permits the individual to satisfy these motives in no, or one, or several, or many ways.

G. CONCLUSION

I have outlined a comprehensive theoretical model of what I find to look at in the environment. That I find the schema useful in predicting as well

form to rôle-defined behavior patterns and the actual patterns of behavior. For my present purpose, the distinction is an important one.

⁶Misconstructions of the environment—due to limitations of intelligence, perceptual habits that obscure changes in the environment, the distorting influences of various motives, etc.—personal standards of behavior which may be more or less irrelevant to a particular geo-behavioral situation but are nonetheless operative within it, fears and doubts which may have little or no objective justification in the situation, interfering motives, defense mechanisms, etc.

as in understanding behavior which has already taken place should be obvious. That it is subject to theoretical improvement, I am, on general principle, certain. There are also many empirical questions the solution of which would greatly enhance its usefulness. Thus, to mention three lines of investigation: (a) The question of differentiable types of environment in relation to differentiable population types is a matter for empirical research. Then (b), there are problems of measurement and interaction between the factors. How, for instance, do you add the constraint of a quota system in college to the constraint of high fees when neither of these, by itself, constitutes an impermeable barrier? And how do you balance a constraint against a director or, for that matter, a drive? Finally, (c), there are questions of the relations of factors included in the schema to psychological phenomena of a higher order than specific behaviors. I have, for instance, already advanced the hypothesis that a relatively stimulusless environment is often a contributing factor in neurasthenia; I may add a similar hypothesis with regard to environments that are relatively impoverished in goal objects so that there is little worth striving for. Apart from the question of whether these hypotheses are sound, there are related questions as to how these two factors, a dearth of stimuli and a dearth of goal objects, interact with each other and with psychological factors in relation to neurasthenia.

But even while the schema is imperfect and many empirical questions are unanswered, I find that simply keeping it in mind enhances my sensitivity to the environments of my fellow human beings and is of material assistance in helping me to predict their behavior and to understand why they are what they are and why they do what they do, the commonplace as well as the unusual. Perhaps it will prove equally useful to others; and, even more important, perhaps it will stimulate some psychologists to improve upon it in the directions indicated or to provide a superior alternative so that we may take better and more systematic account of the environment in our day-to-day work and in the structure of psychological theory.

One further point should be made explicit. The anthropological and sociological literature is replete with materials relevant to the schema. This is especially true with respect to the sections on supports and constraints (as related, for instance, to social class differences) and on "directors." As a matter of fact, the whole notion (if not the terminology) of "directors" is largely borrowed from this literature. It may not be too much to hope, therefore, that some such schema as the present one may offer a bridge from these disciplines to psychology. The need for interdisciplinary unification has been evident for some time, but it has not always been clear how one

discipline can best utilize the materials of another with respect to its own problems. The psychology student, for example, may find that many topics in his social psychology course (particularly when the course is taught from a sociological point of view) have little connection with the "layout" of psychology as he learns the latter in his other psychology courses; it often seems that social psychology involves a new world of psychology, not quite co-ordinate with the old. Perhaps the present schema points out one way in which psychology can enrich itself with certain anthropological and sociological findings without deviating from its own fundamental outlook or systematic structure.

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SUBCULTURAL VARIATION IN CEYLONESE MENTAL ABILITY: A STUDY IN NATIONAL CHARACTER*

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A. INTRODUCTION

It has frequently been pointed out that if concepts such as "basic personality" and "national character" are to have scientific or practical utility, it is important not only to establish the central tendency, but also to indicate the extent of dispersion (4, 8, 9). One of the most important ways in which such variation from the basic pattern can occur is through differential sub-cultural group membership. Subcultural differences within any one culture may even be equal to or greater than differences between cultures. For example, an urban working class may differ more from their upper middle class fellow countrymen than they differ from the urban working class population of another country. The present investigation was undertaken to test the hypothesis that subcultural group differences in personality are of equal or greater importance than differences between major cultures. A number of different technics are being employed to test this hypothesis. In the present paper findings based on a relatively simple but important aspect of personality are reported: the unique *pattern* of mental ability which has been found to be characteristic of at least that segment of the Ceylon population which is represented in the University of Ceylon student body. This pattern consists of a high level of ability in respect to *verbal* tests of intelligence, and a low level of ability in respect to *non-verbal* tests (16). The importance of this pattern for a nation which is short of technicians and which is seeking to industrialize is apparent.

Since the university students are bilingual, and for the most part speak English as a second language (though very fluently), previous research in the field of mental testing would lead one to expect these students to obtain higher scores on the non-verbal than on the verbal sections of the test (1, 2, 5, 11, 12). Contrary to these expectations, when administered the Cali-

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fornia Test of Mental Maturity (18) the Ceylon students greatly *exceeded* the performance of American university entrants in respect to the *verbal* test sections, but were decidedly *below* the American average for *non-verbal* intelligence test performance.² On the other hand, for "Total Mental Factors," which is the equivalent on this test of the traditional *IQ*, there was little difference between the average performance of Ceylonese and Americans. This similarity, however, is a statistical phenomenon resulting from the balancing of the Ceylon student's higher than U. S. average Language Factors score against their lower than U. S. average Non-language Factors score. Thus at least in respect to mental ability there is reliable evidence for a distinctive Ceylonese as compared with American patterning of the way in which an individual expresses his abilities. A detailed explanation of this phenomenon was given in a previous paper (16) which emphasized the rôle of certain childhood experiences, values, and social rôles characteristic of the educated classes in Ceylon. Specifically, the influence of the following factors was pointed out: (*a*) the traditional and still powerful upper class rejection of manual tasks, coupled with similar caste associated prohibitions; (*b*) the nature of the educational system and curriculum which stress feats of memory and learning by precept and rote; and especially the channeling of intellectual effort into paths leading to a post in the much coveted government service; (*c*) the generally higher prestige accorded to verbal scholarship as represented by the poet or the philosopher as compared to the scientist or the engineer; (*d*) the reinforcement of certain of these traditional Eastern culture traits as a result of the long period of British rule which has just ended. These factors were taken as indicative of the existence of an integrated culture complex, composed of both indigenous and assimilated culture traits, which has the effect of defining a set of rôle behaviors that on the one hand tends to depreciate manual and technical ability, and on the other hand tends to emphasize and reward the verbal type of scholarly excellence.

However, the social structure of Ceylon is complex and varied. Social class differences are pronounced and the population is divided into endogamous "communities" or ethnic groups speaking different languages. With these and other differences in mind, it is clear that this is a culture in which

²Reasons for the choice of this test are given in the previous paper. The testing was done in small groups at the time the students reported for their medical examination through the coöperation of Dr. H. Cullumbine, Professor of Physiology, University of Ceylon, to whom the author wishes to express his appreciation. The sample consists of 143 men, and 69 women. This represents a loss of only one unit from the original 50 per cent interval sampling design.

there is ample opportunity for subcultural variation to occur. Thus to test the hypothesis posed above (that subcultural differences are of equal or greater importance than differences between major cultures) in this society, is to stack the cards in favor of acceptance.

Acceptance or rejection of this hypothesis with any degree of certainty will require evidence from many cultures, and covering many aspects of personality. One such test consists of determining whether or not students of differential subcultural group membership differ from the general Ceylon University pattern of high verbal and low non-verbal test performance as much as the Ceylonese as a whole differ from the American standardizing population. Deviation from the Ceylon University pattern of ability shall be defined as a Language Factors score falling significantly below, and a Non-Language Factors score significantly above the university median at the .05 level.³

In addition to this analysis of university student data, certain findings obtained in connection with an investigation of child training practices and personality development of village children, also bear on the hypothesis posed. A brief analysis of this data is therefore given in Section C.

B. INTRA-UNIVERSITY PATTERNS

1. *Ethnic Group*

While the census reports 11 such groups, this discussion is limited to the four which are represented in the University in sufficient number to enable statistical manipulation, as follows:

The Sinhalese who form the largest single group (69.4 per cent of the total population), are predominantly Buddhist, and speak Sinhalese. The

³The centile scores used for the University student analysis in the paper are based on the performance of the total student sample rather than the published centile norms. This procedure was adopted for the following reasons: (a) A number of different tests, ratings, and interviews are being employed in this investigation, none of which are validated for use in Ceylon. In order to secure comparability from one instrument to another, it was decided to record all scores in terms of centile rank. (b) Since the published test norms (for those instruments where they are provided) cannot be considered valid for Ceylon, the assumption was made that the present sample constitutes a standardizing population for the population from which it was drawn. That this assumption is not without foundation is illustrated by the present data. When expressed in terms of the *published centile norms* for American university freshmen, the scores of the Ceylon students pile up at the ends of the scale, forming highly skewed distributions, and giving the impression that some parts of the test are too easy for the population sampled, and other parts too difficult. However the *raw scores* of the Ceylon students were found to be normally distributed, and to fall well within the minimum and maximum score limits, without crowding either limit, so that it is apparent that the test does not artificially cut off either end of the distribution.

difference between the Low Country and Kandyan Sinhalese is thought to be an arbitrary one. However, there are grounds for expecting important differences, if for no other reason than that the Low Country Sinhalese have been exposed to foreign rule and influence for a longer period and with greater intensity.

The Ceylon Tamils constitute some 10 per cent of the total population, and are concentrated in the Jaffna Peninsula in the northern part of the island, and also constitute about half of the population of Colombo where they hold posts in government and commerce. Unlike the Sinhalese, they are predominantly Hindu in faith, and they also speak their own language.

The Burghers (0.6 per cent of the total population) are descendants of the Portuguese and the Dutch occupiers of Ceylon, who have intermarried with the indigenous population to varying degrees. They are Christians, speak English, and are almost exclusively an urban group.

A priori, the ethnic groups just described would seem to constitute the sharpest and most differing subcultural divisions in the Ceylonese population. There is indeed some question whether the first allegiance of these "races" or "communities" as they are called locally, is to their own group or to the nation.

TABLE 1
MEDIAN INTELLIGENCE TEST SCORE BY ETHNIC GROUP

Ethnic group	Number	Language factors		Non-language factors	
		Median*	CR**	Median*	CR**
Low Country Sinhalese	127	48.3	0.33	43.2	1.29
Kandyan Sinhalese	14	43.0	0.62	55.5	1.65
Ceylon Tamil	52	47.2	0.37	56.2	0.93
Burgher	12	84.0	4.66	75.0	2.96

*In Tables 1 to 4 a median score of 50.0 corresponds to the average test performance of the entire sample of Ceylon University entrants (see Footnote 2).

**All critical ratios presented in Tables 1 to 4 are comparisons between subcultural groups and the entire sample of university students. Formula is from Peatman (10).

It is apparent from Table 1, however, that in spite of their many cultural differences the test performance of the Sinhalese and Tamil students does not differ by much. The scores of the Kandyan Sinhalese in fact are, if anything, more similar to those of the Tamil students than to those of the Low Country Sinhalese. Both the Kandyan and the Tamils have Language Factors scores below the University average, and Non-Language Factors scores above the University average. These two groups therefore show a tendency to deviate from the Ceylon University pattern in the hypothesized directions. However, in neither case is the Language Factors score

significantly below, or the Non-Language Factors score significantly above, the University median at the .05 level. The Burgher students stand out sharply, as their average test performance is much higher than either the Ceylon average or the average for any of the groups just discussed. In spite of this, it is also evident that the Burghers are different mainly in a quantitative sense. For *both* scores are significantly above average and their Language Factors performance is relatively superior to that for Non-Language Factors. Thus, the pattern of mental ability represented by the medians in Table 1, shows little deviation from the characteristic Ceylonese pattern of relatively high verbal, as compared to non-verbal, test performance.

The marked superiority of the Burgher students is of considerable interest, not only because the findings confirm inferences drawn from the position which they have for many generations occupied in the professional and administrative life of the island, but also because being a group of mixed race, their performance refutes the racialist contention that race mixture produces an inferior strain (7). Previous investigations by anthropologists such as Hershkovits, Kleinberg, and Shapiro have also led to the same conclusion (7). In fact, Shapiro (15) suggests that at least among the Anglo-Polynesian Pitcairn Islanders, the result of race mixture can better be described in terms of the phenomenon of heterosis or "hybrid vigor" familiar to experimental genetics. However, the most conclusive findings of these investigations have been in respect to bodily measurements and functions. The results of the present investigation therefore greatly strengthen the evidence for concluding that individuals of mixed race are in no way inferior—intellectually as well as physically. Moreover, if one were so inclined, the fact that the test performance of a group of mixed race has been found to be considerably above that of so called pure races, could even be used to argue for the existence of hybrid vigor in respect to intellectual traits. However, it is unlikely that these ethnic group differences (or the religious group differences analyzed below) can be attributed to any difference in hereditary, or gene structure, of the groups concerned. A more tenable explanation can be based on such experiential factors as differences in values and motivations, and also differential opportunity and experience with the specific type of tasks sampled by the test employed. This occurs both indirectly and directly through such things as ability to pay for education in Christian schools, where—unprogressive as it is—education is probably better than in government, Hindu, and Buddhist Theosophical Society schools at the same academic level.

2. Religion

In examining the influence of differential ethnic group membership on the pattern of intelligence test performance, religion was to a certain extent also included because the traditional religions of the groups analyzed are different. The Sinhalese are predominantly Buddhist; the Tamils, Hindu; and the Burghers, Protestant Christian. However, religion is only one of the many points of difference between these groups. Moreover, there are now, and have been for generations, a large number of Christians among the Sinhalese and Tamil population.

TABLE 2
MEDIAN INTELLIGENCE TEST SCORE BY RELIGIOUS GROUP

Religion	Number	Language factors		Non-language factors	
		Median	CR	Median	CR
Buddhist	103	41.6	1.56	44.5	0.95
Hindu	36	32.0	2.60	47.3	0.39
Catholic	32	62.0	1.76	52.0	0.24
Protestant	33	73.9	3.48	61.6	1.55

Comparison of the median scores and critical ratios in Table 1, with those shown in Table 2, reveals a somewhat similar pattern of variation among the various religious groups as was found between ethnic groups in the previous section. This is to be expected because of the considerable degree of overlapping already pointed out. Thus, the Buddhist and Hindu students tend to be slightly below the university average. Christians, and especially Protestant Christians, are clearly above the University average. It is pertinent to compare the findings in respect to ethnic group and religion with certain stereotypes prevalent in Ceylon.⁴ In these stereotypes, the Ceylon Tamil is often viewed as hard working and industrious, as compared to the Sinhalese who is thought to be carefree and somewhat lazy. Tamils are also sharply overrepresented in the University, as compared to the Sinhalese, who are underrepresented (17). It may therefore come as a surprise to many people in Ceylon to learn that in respect to performance on a standard intelligence test, there is no important difference between Sinhalese and Tamil or between Buddhist and Hindu. Apparently the differences which have been noted between Sinhalese and Tamil, are not a matter of intellectual capacity, but rather of such factors as drive, perseverance, and ambition.

In order to eliminate the overlap between ethnic and religious group and

⁴As revealed in practically all descriptive and travel books on Ceylon and in the preliminary results of the author's investigation of ethnic group stereotypes among Ceylon University students; and also in a similar study (to be published shortly) of Ceylonese school children by Prof. T. L. Green of the Department of Education.

thus provide a more crucial test of religious group differences, the median scores for Protestant students were recalculated, omitting the Burghers, and using only Sinhalese and Tamil Protestants. The resulting medians are Language Factors 73.0, and Non-Language Factors 60.1. These scores hardly differ from those of the total Protestant group, and are similarly above those of any of the other religious groups examined. It is therefore evident that religion is an important factor which is not dependent on congruence with ethnic group, although as previously mentioned, this cannot be taken as evidence of either direct causal relation or of inherent biologic difference. It is interesting to note, however, that this finding apparently fits Weber's theory of the rôle of the Protestant ethnic in the development of Western civilization (20), and points to a fruitful area of research designed to test this theory.

The Non-Language Factors performance of both Catholic and Protestant students is above the University average. However, as in the case of the Burghers examined previously, it is still relatively inferior to their Language Factors performance. Thus among the religious subcultures under consideration there are some which exceed and others which fall below the University average, but in no case is there deviation from the Ceylon pattern of test performance as indicated by a Language Factors score significantly below the University average and Non-Language Factors score significantly above.

3. Residence

The literature on rural-urban differences is an extensive one, and in general the fact that rural people do not do as well as urban people in respect to performance on standard intelligence tests is fairly well established in the West. The findings presented in Table 3 indicate that the same relationship holds in Ceylon as in Europe and America. Not only is the average test performance of the students from rural areas lower than that of students

TABLE 3
MEDIAN INTELLIGENCE TEST SCORE BY RESIDENCE

Residence	Number	Language factors		Non-language factors	
		Median	CR	Median	CR
Columbo and suburbs	65	65.1	2.41	62.2	1.81
Other urban areas*	49	51.3	0.17	49.7	0.04
Rural non-farm	71	44.8	0.86	44.4	1.00
Rural farm	27	32.0	2.05	37.1	1.26

*The term "other urban" refers to the 20 "principal towns" for which 1946 population figures are given in the Statistical Abstract of Ceylon (6). The population of these 20 towns ranges from 3,970 to 62,543.

from urban areas, but the more rural of the former group—those who are the sons and daughters of planters and paddy farmers—have lower scores than the children of families living in rural areas, but following non-agricultural occupations.

It should also be noted that there is a slight tendency for the urban students to do relatively better on the verbal type tests as compared to the non-verbal tests, and the rural students better on the non-verbal tests as compared to the verbal tests. This too is in conformity with findings in the West. In spite of this however, the rural students still do not even exceed the *Ceylon* median in respect to non-verbal test performance, and they too may therefore be viewed as following the general pattern of superior verbal ability as compared to the type of non-verbal tasks posed by the Non-Language Factors test sections.

4. *Socio-Economic Status*

Determination of relative position in the status hierarchy of a society is necessary in many social psychological investigations. Ideally, it should probably be done by having the individual under consideration placed in one of a number of categories by those who know him (19). Practical considerations often make such a procedure impossible, as was the case in this study. It is known, however, that status position is associated with a number of characteristics which can be easily ascertained, such as the occupation of the head of the household, the area of residence, and the possession or use of certain goods and services (3, 14, 19). Therefore information was obtained from each student in respect to eight such characteristics. From this data an arbitrary type scale with a range of zero to 10 (and a mean for this population of 4.1) was designed for purposes of identifying students of different socio-economic level (17).⁵

It is clear from the median scores presented in Table 4 that socio-economic status, as here defined, is associated with intelligence test performance. However, the extent of this association is not large, as shown by a correlation of $\bar{C} = .33$ for Language Factors and $.27$ for Non-Language Factors. It should be noted that these coefficients are lower than those obtained for the other factors considered in this paper which ranged from a high of $.44$ for

⁵The validity of this scale has not been established, but the utility of similar scales has been demonstrated in the West, and the present instrument may be said to have face validity. Scores on this socio-economic scale were found to be correlated with other status characteristics. For example, the coefficient of contingency between this scale score and a prestige rating of father's occupation is $.46$; and between socio-economic status score and the student's self identification as to which social class he belonged to $.50$.

TABLE 4
MEDIAN INTELLIGENCE TEST SCORE BY SOCIO-ECONOMIC STATUS SCORE

Score	Number	Language factors		Non-language factors	
		Median	CR	Median	CR
0- 2	44	44.7	0.73	48.8	0.18
3- 4	94	49.3	0.12	43.9	1.44
5- 6	47	54.6	0.54	59.9	1.41
7-10	27	66.1	1.65	52.9	0.25

the relation between religion and Language Factors, to a low of .27 for the correlation just cited. This does not mean that status differences are *in general* less important than the other factors which have been reported. The relatively low correlation is rather a reflection of the socio-economic selectivity of the student population which has been demonstrated in a previous paper (17). The lowest score group (0-2) on this socio-economic status scale is low only relative to other students. In terms of the total population of Ceylon, the present low score students represent a relatively high status group. In the light of these considerations, it is significant that the extent of covariation of status and test performance is as large as it is. One may even hazard the guess that were a sample to be drawn which represented the total population of Ceylon, status differences would be one of the most important sources of intra-Ceylon variation, and this conclusion is supported by the data presented in Section C. On the other hand, it is important to note that there is still no divergence from the unique Ceylon pattern of mental ability: high verbal ability and low non-verbal ability.

C. THE VILLAGE PATTERN

An investigation being conducted by the author into child training practices and personality development of Ceylon village children provided opportunity for further testing the hypotheses and findings just presented. While this project will ultimately deal with three or four villages representing different socio-cultural areas of Ceylon,⁶ the data presented below are from a pilot study conducted in the Low Country village of Pelpola, Raiygam Koralle. As the primary focus of this investigation is on child training practices, the subjects chosen consist of all children who were (or should have been) attending third grade in April, 1951. The sample size is 46, consisting of 26 boys, and 20 girls, which is two children less than the uni-

⁶The regional concentration of ethnic and religious groups, and the important cultural differences, which make necessary the use of several villages, is shown in Ryan's article "Socio-cultural regions of Ceylon" (13).

verse as defined above.⁷ Under the authors supervision, the children were group administered the Primary Series of the California Test of Mental Maturity (18) by three senior students in Sociology who had been specially trained for the project.

The most immediately apparent thing about the median scores presented in Table 5 is the fact that they all occupy the lower portion of the centile scale. Unlike the University students, these village children do not com-

TABLE 5
MEDIAN INTELLIGENCE TEST SCORES OF THIRD GRADE CHILDREN, VILLAGE OF
PELPOLA, 1951

Test component	Median* (N=46)
Total Mental Factors	8.1
Language factors	8.8
Non-Language factors	6.6
Spatial Relations	13.3
Logical reasoning	4.4
Numerical reasoning	36.0
Vocabulary	20.0

*Based on the centile norms given in the test manual.

pare favorably with the American standardizing population. These low scores can be attributed to a number of factors including the greater importance of culturally biased test items in working with village children as compared to westernized university students. They are also a reflection of the poor quality of village education, and confirm the often found rural-urban differences in test performance.

However, as in the case of the University students, the major interest of these scores lies not in the erroneous task of attempting to compare the general level of intelligence of differing populations, but in the contribution which they make to knowledge of the thoughtways and personality patterns of the population under investigation, and to the hypothesis concerning subcultural variation which forms the focus of this paper.

In respect to the verbal, non-verbal relationship, there is only a small difference between the obtained score on Language Factors, and the one for Non-Language Factors. However, it is noteworthy that the difference that does exist is in the same direction (even if not of the same magnitude) as was found for the University students. The critical ratio for this difference is 1.02 ($p = .30$).⁴ The fact that the scores are skewed at the bottom end

⁷One boy was undergoing hospital treatment for rabies, and a girl repeatedly failed to be present for the testing.

of the scale, reduces the discriminatory power of the test. Had an instrument more suited to the intellectual level of the sample been employed, a statistically reliable difference might have been obtained. Also pointing to this conclusion is the fact that of all the test sections the second highest median score obtained is for Vocabulary. Thus, the village children show a tendency towards the same pattern of mental ability as the university students, but to a markedly lower extent.

Attention should also be called to the fact that the lowest score obtained was in respect to Logical Reasoning. There are grounds for believing that this low score is a direct reflection of the mechanical and doctrinaire type of education to which these children are subjected, and which is itself a reflection of certain basic thoughtways of this culture. Among the most important of these are the tendency to settle things by appeal to authority and the deeply rooted faith in the efficacy of magic. The median score obtained by the University students on this component was much higher (males 40.1; females 30.5) and it also was not the lowest scoring component. However, the performance of the University students is below the U. S. median, as well as below their own Total Mental Factors median, which suggests that the conditions just described are not confined to village children.

D. SUMMARY AND CONCLUSIONS

The hypothesis was posed that subcultural differences in personality are of equal or greater importance than differences between major cultures. To test this hypothesis, subjects of different subcultures within the Ceylon population were studied to determine whether or not they conform to a specific pattern of mental ability: high *verbal* and low *non-verbal* test performance.

Sixteen subcultural groups within the University of Ceylon were examined. Only two out of these 16 groups showed a tendency to deviate from the pattern of mental ability found to characterize the University as a whole (i.e., high verbal and low non-verbal test performance). In both cases however, this tendency was not significant at the .05 level. Several other differences between groups were found to exist, but all are differences of degree rather than kind. That is, the general level of test performance is high for some groups and low for others, but in comparison with American students all groups did much better on the verbal test sections as compared with the non-verbal sections.⁸ Thus in respect to the pattern by which

⁸None of these groups obtained a Language Factors score as "low" as the American average, nor a Non-Language Factors score as "high" as the American average, the medians for the American standardizing population being 29.0 and 87.5 respectively when calculated in terms of the Ceylon University centile values.

mental ability is expressed in this culture, none of the subcultural groups within the University showed a significant deviation in the hypothesized directions.

A sample of Low Country village children on the other hand did not evidence the *extreme* disparity between verbal and non-verbal test performance which characterized the University student data. However, it is noteworthy that they too scored somewhat higher on the verbal as compared to non-verbal test sections. The evidence in the case of the village children is obscured by the skewed distribution of test scores, but they too tend to excel in verbal as compared to non-verbal test performance. Although slight, the significance of the trend in this direction is enhanced by the fact that it is in the opposite direction from what would be expected on the basis of rural-urban differences in the United States, where rural subjects do better on non-verbal type tests.

The many cultural differences existing within the university population (including even differences in home language), have already been mentioned, as has also the contrast between the agricultural villager and the urbanized and westernized university population. In spite of this subcultural diversity, at least one aspect of the major culture has been found to be common to all the groups investigated: the tendency to excel in verbal as compared to non-verbal test performance. The hypothesis posed for testing must therefore be rejected. It is significant that such a pervasive pattern should be found to exist in this varied and complex society. The fact that at least one personality trait has been identified which can be considered "basic" to Ceylonese culture lends support to the validity of the concepts of "basic personality" and "national character" in the usual more holistic sense.⁹

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⁹When the previous paper (11) was being discussed at the January, 1951, meeting of the *Indian Science Congress*, one of the discussants (a psychiatrist) pointed out that in the West, a sharp discrepancy between verbal and non-verbal test performance is taken as indicating personality disorganization. However, in India he found this relationship so common among his patients that it had no diagnostic significance. In addition to emphasizing the need for normative data in clinical practice, this observation points to the conclusion that the pattern of mental ability described in these two papers may be characteristic of other Eastern cultures besides Ceylon.

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SHORT ARTICLES AND NOTES

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NOTE ON FACTOR ANALYSIS OF AMERICAN CULTURE: A REJOINDER

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I am indeed grateful to Dr. Murchison who gave me the opportunity to reply to E. H. Hsü's criticism of a paper of mine (2).

The 11 points raised by Dr. Hsü will be taken up in the same order he has chosen (4):

1. Using orthogonal rotations I have tried to attain as simple a structure as possible. It is, of course, conceivable that another investigator may obtain a better rotation of the same loadings. Dr. Hsü has, however, not presented any suggestion along that line. I am afraid that he misunderstands the essence of orthogonal rotations when he complains about the fact that the loadings of the unrotated factors are not given in my paper. Orthogonally rotated factor loadings are just as amenable to "further rotations" as are the original centroid results. If Dr. Hsü doubts the acceptability of my rotations he is, of course, free to re-rotate my data, and Table 3, of my paper contains all he needs for that job. I regret that Dr. Hsü has not given any example to support his claim, that "the interpretation of the same variable varies with the factors." I don't think this is true; if it were true, one might wonder whether the same variable could not appear under different conceptual (i.e., interpretative) aspects in the context of different factors.

2. It may seem somewhat unfortunate that sociological data are very often available only in index form. I may, however, quote McNemar on this issue: "There are instances, however, in which an analysis of the interrelations of ratios is of just as much import as the analysis of the variables from which the indexes are obtained, and therefore it does not follow that the correlation between ratios having a common denominator is necessarily misleading" (5, p. 138).

3. I have not claimed any single state of the U.S. as "bucolic." Nevertheless, there can be very little doubt that some of our states are more rural

in nature than others. In Tables 4, 5, and 6 of my paper, which attempt an interpretation of the factors, their loadings have been given with the signs they had in my rotations. In the column entitled "trait" these signs have been taken into consideration by the adjectives "high" and "low." This is, incidentally, the same procedure that R. B. Cattell has used. I am indeed sorry that this simple device has confused Dr. Hsü so much. Of course, low birth rate is not interpreted as an indicator of rural fertility.

4. With regard to the classic issue of orthogonal versus oblique rotations I may be permitted to quote from another paper of mine: "The present writer contends that there is no essential difference between oblique and orthogonal rotations. These are two different ways of coding the same amount of information. The oblique method codes it in two separate steps, i.e., as the direction cosines between the vectors and as the factor loadings. The orthogonal method codes it in the factor loadings alone since it makes all the direction cosines become equal 0.00. It has occurred to the present writer that the direction cosines tend to be overlooked by the users of the oblique method. It is for this reason and because of its greater simplicity that I prefer the orthogonal method which has, however, the disadvantage of giving vectors which are sometimes less clearly defined by their loadings than oblique vectors tend to be" (3, p. 163/64).

5. If Dr. Hsü has ever gone through the work of compiling the necessary material for an obverse analysis of the 48 states using "any number of cultural traits, say from 200 to 500," then he should certainly be given credit for it. He may, however, in the course of such efforts become aware of the difficulties which his utopian recommendation entails. In passing, I may indicate that the study of American cities has in the meantime been published by the present writer (3). Unfortunately, I did not know that Dr. Andrews was working on a similar project.

6. I accept Dr. Hsü's recommendation that the terms "parameter" and "variable" should not be used interchangeably. This point is, however, entirely unrelated to the topic of my paper.

7. Dr. Cattell, as well as myself, is rather pleased with the amount of agreement between our factorial studies. I suppose that Dr. Hsü did not seriously intend to indicate that two analyses which operate on different levels of social organization and use different variables should be expected to come out with identical results.

8. It was probably in a humorous vein that Dr. Hsü extrapolated my own argument against mono-factorial interpretations of the differences between cultural patterns to the claim that Spearman, Burt, and Holzinger,

who believe in a general factor (in the intellectual domain), would for that reason be considered as "Marxian followers." All I had to say was that the results of factorial analysis of cultural patterns are incompatible with any mono-factorial hypothesis, such as the Marxian hypothesis. I cannot see that Dr. Hsü has brought forth any challenge to that statement. The respective merits of the different methods of rotation are entirely immaterial for this argument since it concerns itself only with the dimensionality of the vector space.

9. The accuracy with which my three factors account for the original matrix of correlations can be readily judged on the basis of Table 2 of my paper which gives side by side the original correlations and those re-computed from the rotated factor loadings.

10. The criticism of my profiles is redundant; it obviously reaffirms only that Dr. Hsü does not accept the rotations I have chosen. His point would seem stronger were it based on a positive suggestion for different rotations.

11. Factor III of my study has significant loadings on six variables and accounts for 13.3 per cent of the total variance. This is hardly compatible with the notion of a "doublet."

In summary, it seems to me that Dr. Hsü's criticism lacks justification and, even more, constructiveness. I am fully prepared to agree with Dr. Hsü upon the fact that the results of factor analyses in relatively new areas are always tentative. But that is a truism.

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(*Le Cron, L. M., Ed. Experimental Hypnosis. New York: Macmillan, 1952. Pp. 483.*)

REVIEWED BY H. J. EYSENCK

A book on experimental hypnosis is almost certain to find a ready welcome among psychologists, most of whom realize the great importance of hypnotic phenomena to any theory of personality, and who have become familiar with the possibilities of experimentally studying the field through the work of Clark Hull. Unfortunately, the title does not give an accurate description of the contents of this book, the individual chapters of which are written by different authors. Out of 20 chapters, at most three can be considered to deal with the topic of "experimental" hypnosis; the remainder are anecdotal, clinical, sometimes historical, and sometimes scholarly. In no sense can they be said to add to the scientific knowledge of the subject or to report the type of controlled observation which scientists have agreed to call experimental.

To say this is not to imply that the book is without value. It is no doubt of interest to have experienced hypnotists explain at length the techniques adopted by them in producing a trance state, or to have "hypnodontics," i.e., the use of hypnosis in dental treatment, expounded by practitioners. What is somewhat unfortunate is the cheapening of the term "experimental" to include and cover studies which, in spite of their interest and importance, clearly do not fall into this category. Gresham's law certainly applies to language, and only an insistence on precision in dealing with terms such as this can keep us out of a semantic quagmire.

The first chapter, "Hypnosis in Perspective" by G. W. Williams, attempts to trace the development of hypnosis in other cultures and to show that hypnotic phenomena are common in everyday life. The historical section, while brief, is interesting; the demonstration of hypnotic phenomena in everyday life suffers from a defect which is running through the book, namely, that of defining in any acceptable operational sense the terms "hypnotic" and "hypnosis." Williams writes, for instance: "Perhaps the most common occurrence of the trance in everyday life is while daydreaming. It may vary from a light to a deep trance. On being hypnotized by a practitioner, these

people will often comment that this is what has previously happened to them during prolonged daydreaming." Perhaps so. However, allegation is not proof and we are free to believe that daydreaming resembles sleep rather than hypnosis. It would, no doubt, be possible to conduct an experiment using, say, the criteria set up by Bass. As no such experiment has been done, Willams is relying on analogy and introspection, both of which are dangerous and misleading. The same verdict may be applied to many of the other examples he gives.

The next three chapters are by J. A. Christenson on the "Dynamics in Hypnotic Induction," by J. E. Whitlow on "A Rapid Method for the Induction of Hypnosis," and by M. H. Erickson on "Deep Hypnosis and Its Induction." These three chapters may be of interest in giving hints to practitioners, but in many ways it is rather difficult to take them seriously. Thus, Christenson stresses the importance of clarity and the subject's understanding of the suggestions made to him—"It is essential that the agent be always definite . . . so that the subject knows specifically and without question what is expected of him." Erickson, on the other hand, describes what he calls the "confusion" technique. This apparently consists in the "presentation of a whole series of individually differing, contradictory suggestions, apparently all at variance with each other, differently directed, and requiring a constant shift in orientation by the subject." It is difficult to know how to reconcile these contradictory ideas. If Christenson, who claims that the essential features of his method were learned from Erickson, is right in claiming that clarity of instruction is essential, then how can we explain the apparent success of the confusion technique, as used by Erickson himself? Again, clearly what we are dealing with is opinion, hearsay, and argument; no evidence is put forward to show us which of the divergent claims is the most acceptable. Even the null hypothesis cannot be ruled out, namely that it does not matter at all what you say; I have myself seen a subject hypnotized by an experimenter who did nothing but count from 1-100 in a language which the subject did not understand! To claim, as the three authors of these articles do, that their success in hypnotizing is proof of the adequacy of the method seems a *post hoc ergo propter hoc* argument, without real justification. What is clearly needed is a properly controlled experiment to study the different effects of (a) method, (b) person, and (c) subject, and their various interrelations.

One point which is brought out clearly, however, by these writers is that the frequent question "what proportion of the population can be hypnotized?" is not a determinate one. Erickson mentions one subject who resisted for some 300 hours before succumbing and describes several other subjects where

hypnosis could only be effected by a highly individualized use of certain unique personality features. Presumably, therefore, our figure for the proportion of the population which is hypnotizable would be quite different for an investigator using a set technique for, say, half an hour, from what it would be with another investigator using a variable technique for, say, 300 hours. The question is unrealistic because it does not specify the conditions of the experiment sufficiently to make a determinate answer possible. If what is meant is "What proportion of the population is hypnotizable under the most appropriate set of conditions by the most appropriate hypnotist?", then there simply is no answer because we know nothing about what makes one person a better hypnotist than another for a given subject; nor do we know what is the best method of hypnosis in a given case.

The fifth chapter on "Hypnotic Susceptibility as a Function of Waking Suggestibility," by W. D. Furneaux, is the first of the properly scientific chapters. Basing himself largely on the original work of Hull and on later studies, some of them carried out by himself, Furneaux argues in the first place that suggestibility is not a unitary mental trait but that experimental and factorial studies agree in showing that we are dealing with several quite unrelated types of suggestibility, such as primary suggestibility of the ideomotor type, in which the suggestion to carry out a motor movement is followed by the suggested movement, and secondary suggestibility, or "gullibility," in which, through the use of indirection, the subject is led to believe that he will experience a certain sensation (smell, sound, etc.) and does report such a sensation, although no objective stimulus is present.

Of these various types of suggestibility, only primary suggestibility has been shown to be related to hypnosis, correlations from several different studies averaging around .6. In addition, however, it has been found that the heat illusion test, which does not correlate with other tests of suggestibility, of either the primary or the secondary type, correlates quite highly with hypnotizability, so that it has proved possible to make a prediction of a person's hypnotizability with almost perfect accuracy on the basis of the heat illusion test and a test of primary suggestibility, namely, the Body Sway test first introduced by Hull. Furneaux gives a long and interesting discussion of the problems raised by these findings, emphasizing throughout that while we have some knowledge about the functional unities involved in suggestible behavior, we still make assumptions about the hypothetical unity of hypnotic behavior which have never been subjected to experimental scrutiny. Further work along factorial lines may ultimately solve this problem, but at the moment, failure to find a solution must inevitably retard progress in the experimental study of hypnosis.

Chapter six, by J. S. Horsley, deals with "Narcotic Hypnosis," "a paradoxical title chosen to describe the psychosomatic state in which the phenomena of simple or verbally induced hypnosis are produced by means of seminarco-synthesis with a drug." Horsley, a pioneer of narcoanalysis and narco-synthesis, argues at some length about the proper method of induction induced in his technique; he is more optimistic than many psychiatrists, whose failure to achieve therapeutic success are attributed to ignorance of the proper procedures. Evaluation of such claims is difficult, if not impossible, through lack of experimental study, control groups, and so forth.

Chapter seven, "A Study of Age Regression Under Hypnosis" by L. M. LeCron, the editor of the book himself, is a valuable summary of a variety of properly controlled experimental studies in this absorbingly interesting field. I would agree with LeCron that the question of the reality of age regression had now been definitely answered in the affirmative. There is no doubt from the literature that behavior under age regression changes in ways which would be difficult, if not impossible, to assume voluntarily. Thus, for instance, in one study the hypnotic subject had a colloid cyst removed from the floor of the third ventricle, having suffered prior to this from blindness in the left half of the right eye (homonymous hemianopsia). Four years after vision had become normal the subject was regressed to the time before the operation and the right homonymous hemianopsia reappeared during the regression.

Particularly impressive in this connection are the results reported by True, who showed that in age regression to a very early age the subject could recall accurately the day of the week at which Christmas or his birthday fell in that year. In age regression to that early period answers were overwhelmingly correct; without age regression they were no better than chance.

An equally interesting approach is presented by some experiments made by LeCron himself. The idea was to set up a conditioned reflex, then to regress the subject to a time before the reflex had been set up, on the assumption that if true regression were involved the conditioned reflex would not take place upon administration of the conditioned stimulus. This was demonstrated successfully in connection with hand-withdrawal and eye-wink; the method might be even more impressive had a function completely independent of voluntary action been chosen, such as the P.G.R., or the pupil reflex.

Chapter eight, "Rorschach Psychodiagnosis in Hypnotic Regression," by B. A. Norgarb, is almost impossible to review, consisting as it does of the report of a single case, tested by means of the Rorschach test during various stages of regression. Those who agree with Norgarb that "the Rorschach

test has proved beyond doubt that it is the most potent single diagnostic instrument clinical psychology possesses" will undoubtedly find this study interesting; those who are less impressed with the available evidence regarding the validity of Rorschach interpretation will be more likely to consider this a singularly ill-conceived study, which, in the nature of the case, cannot provide proof for any hypothesis whatever.

Chapter nine, mainly contributed by L. F. Cooper, deals with "Time Distortion in Hypnosis." Cooper tried to slow down the subject's perception of time so that as much ideational activity took place in a second as ordinarily would take place in a longer period of time. The editor of the book appears to attach very great importance to this report, calling it "a most unique experiment." I can see little justification for such a view. For instance, the subject would be presented with a problem to consider for what actually were 10 seconds, but which she was persuaded were 10 minutes. The problem, which dealt essentially with social relationships on which advice was wanted, was presented verbally, and after 10 seconds she was asked to "tell me about the problem." Apparently she had a good deal to report—"Her account of this experience was amazing in the fullness of detail and the amount of reflection that it apparently indicated." There do not appear to have been proper control experiments, nor were problems presented to her which permitted of a numerical assessment of the actual amount of work done, such as, for instance, a problem from an intelligence test. In the absence of such vital information, nothing useful can be said about this "experiment."

The tenth chapter, by P. J. Reiter, deals with "The Influence of Hypnosis on Somatic Fields of Function" and is a concise but uncritical account of some 30 Continental studies in this field, most of which will be unfamiliar to Anglo-Saxon readers. The phenomena themselves, of course, are well known and are of great importance in any theoretical view of hypnosis.

Chapter eleven, by S. J. van Pelt, reports a very slight study on "The Control of the Heart Rate by Hypnotic Suggestion," which falls in line with Reiter's summary.

Chapters twelve, thirteen, and fourteen, "Hypnosis in Obstetrics" by W. T. Heron and M. Abramson, "Hypnodontics" by A. A. Moss, and "Hypnosis in Dentistry" by T. O. Burgess will not be discussed in detail as they are essentially reports of the application of hypnosis and contain little that is of fundamental importance, although these chapters will no doubt be of interest to those specializing in these fields.

"Extrasensory Perception and Hypnosis," by J. B. Rhine, constitutes the fifteenth chapter. In the main his report is restricted to a historical survey;

in his experimental work little evidence was found of the alleged influence of hypnosis on ESP, and Rhine concludes: "There was not sufficient advantage resulting from hypnotic suggestion to warrant the greater expenditure of time and effort which that method called for, and it was abandoned." Rhine seems to feel that the essential defect lies in the fact that it is not known what the hypnotic subject should be told with respect to his ESP attempts; it is not sufficient to simply exhort him to do better than before. In so far then that this chapter enables us to form an opinion, it must be that there is "no necessary connection between hypnotizability and ESP" and that progress in the experimental studies would depend on the discovery of specific suggestions related to ESP ability.

Four chapters by G. Odencrants on "Hypnosis and Dissociative States," by A. M. Mühl on "Automatic Writing and Hypnosis," by J. G. Watkins on "Projective Hypnoanalysis," and by J. M. Schneck on "The Hypnoanalysis of Phobic Reactions," I shall not deal with in any detail as, again, they are largely anecdotal and of no general interest except possibly to the practitioner of hypnoanalysis.

Chapter sixteen, however, on the "Antisocial Uses of Hypnosis," by P. C. Young, is, together with the chapters by Furneaux and LeCron, a contribution of outstanding interest and genuine scientific merit and will, therefore, be discussed in some detail.

As is well known, some experts follow Erickson in believing that it is impossible to use hypnosis for criminal and anti-social ends, or at least that such a possibility has not been made the subject of incontrovertible proof. Others follow Wells and hold the view that such dangers are very real and that there is ample experimental proof in favor of their view.

At first sight these opposing views may seem difficult to reconcile. Young succeeds in showing that it is not the facts that are at issue but rather that the controversy arises from the unusual way in which Erickson defines his terms. Thus, he appears to regard an anti-social act in hypnosis as an act which the subject has been made to see as anti-social, whereas for Wells and most other workers, the main use of hypnosis would be that of misleading the subject into believing that his act was good or at least necessary. From the practical point of view there seems no doubt that Young is right in siding with Wells and many others on this issue; a criminal wishing to make someone commit a crime under hypnosis would certainly not baldly tell the subject to "Go and murder Mr. X," but would "employ every trick of hypnosis, that is, vivid hallucinations, realistic illusions, and delusions in keeping with the personality needs of the subject and the ulterior purposes

of the hypnotist. In addition he would use the apparent innocuousness of the situation, including the hypnotist—subject relationship of dominance on the one side and trust and compliance on the other. Thus, if one were seriously attempting to induce anti-social behavior . . . he would seek to falsify the whole external and subjective situation for the subject." That under these conditions subjects can be induced to perform anti-social acts can hardly be doubted in view of the evidence produced by Young. Not all of this evidence is quite unequivocal; "relationships of dominance on the one side and trust and compliance on the other" can be induced by other methods than hypnosis and controlled experiments exploiting the relationship of Professor-student, for instance, are not always carried out. Where they have been included in the experimental design, however, results have been positive. We must conclude with Young, therefore, that "If in skilled and worthy hands hypnosis is as powerful and salutary an instrument as its recent application . . . indubitably indicates, then in *skilled but unworthy* hands it might become an instrument of danger."

In trying to arrive at a considered opinion on this book, one feels on the one hand that it contains a good deal of factual material, much interesting speculation, as well as a fair number of pages which reflect little credit on the writers or the editor. Considering the good and the bad, the balance is decidedly positive. But, on the other hand, considering the task of factual synthesis which, except in a few chapters, has been shirked in this book, one feels sorry that nothing better is available to give interested students a conspectus of the field in its present state.

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(There will always be two pages of book titles, listed in the order of receipt, i.e., the most recently received books will be found at the end of the list.)

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THE OBJECTIVE ASSESSMENT OF PERSONALITY AMONG FACTORY WORKERS*¹

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A. INTRODUCTION

The work reported in this paper forms part of a project carried out by a unit commissioned to study the occupational adjustment of psychologically handicapped persons. As other papers to be found elsewhere (20, 21) are devoted to the occupational aspects, this one is confined to a psychometric study, the aim of which was to provide objective assessments of personality which could be used as measures of psychological handicap.

B. POPULATION STUDIED

This consisted of 80 male unskilled workers forming an intact section of a basic production department in a medium-sized modern factory. Their ages ranged from 22 to 64 years (mean 38.75; median 37; standard deviation 9.12). Their service in that department ranged from one to 30 years, the median falling at 10 years.

C. PRELIMINARY CONSIDERATIONS

In a chapter on "Personality Tests" which specifically excludes rating scales and projective methods, Maller (25) provides a bibliography of about 250 selected references, while commenting that a complete list would exceed one thousand titles. Of these only a few are relevant to this investigation by reason of their departure from questionnaires and self-assessment inventories, and of these few hardly any suggest from their titles that they have been

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employed in industrial settings. Similarly, Rundquist (35) appears to regard "personality tests" and "personality scales" as synonymous expressions though his approach to the topic is clearly on a "prediction" basis, and he recognises a distinction between such an attitude and that arising from studies of adjustment.

Several important factors conditioned the choice of suitable tests for inclusion in the programme. One of these was the amount of time per man which could be made available during working hours; another the acceptability of the actual material or requirements of the tests; and a third the likelihood that overt probings, such as are typified by the American type personality inventory, would not be answered straightforwardly by many of the workmen. This was recognised by Vernon (40) in his report on "The Assessment of Psychological Qualities by Verbal Methods": "It is clear that the methods with which the Report deals are likely to be rendered valueless should the testees or raters have any motive for falsification; and that it is seldom possible to detect when such falsification has occurred. . . . We are therefore entirely dependent upon the good faith and the coöperation of the testees or raters. . . . There is no reason to suppose that deliberate falsification played a large part in any of the investigations we have described. But unwitting distortions, whose effects are similar, are likely to be ubiquitous." Accordingly, a thorough survey of the British and American literature was carried out in search of those tests which might be best expected to serve the required purposes reliably and validly within the limitations described above. They could for convenience be grouped under four heads: cognition, dexterity, temperament, and emotional stability. Of these the first two occasioned little difficulty apart from time consumption.

Objective testing in the two latter spheres (of temperament and emotional stability) may for practical purposes be divided into three approaches. These are: personality inventories; the diagnostic use of tests yielding score-patterns, such as the Wechsler-Bellevue; and those typified by the studies reported by Eysenck *et al.* (9). Of these the first, relative to its time consumption, seemed unlikely to be worth risking for the reasons mentioned above. The second may be a practical tool in the clinical examination of abnormal personalities, but shows less promise as yet when applied as a screening device to the normal population. The third approach possesses the merits of low time consumption per test and of being far from obvious to the subject, but lacks widespread use outside the limited spheres of mental hospitals, neurosis centres, and Service populations. The concluding paragraph of Eysenck's book may well be quoted at this point: "In brief, we believe that the researches here sum-

marised have succeeded in isolating two main personality dimensions, and in discovering a series of tests which enable us to perform quantitative investigations along these two dimensions. And while the batteries of tests suggested for this purpose are only very provisional, and are capable of much improvement, there can be little doubt that they do measure, in a rough and ready way, two variables which have in the past proved extremely elusive."

Since that was written, at the end of 1946, several studies have been carried out in connection with such tests of "neuroticism" and "introversion-extraversion." Among these may be mentioned one concerned with groups of normal and neurotic children, reported by Himmelweit and Petrie (23); others by Petrie and Powell with nurses (32); by Petrie (30, 31); and Crown (7) in connection with prefrontal leucotomy; by Gravely (16) and by Clarke (5) both with "normal" and "neurotic" soldiers; by Eysenck (12) with "normal" soldiers and psychotic civilians; a co-twin control study by Eysenck and Prell (13), with children; and one by O'Connor (28) with high-grade mental defectives. The general impression arising from these varied studies confirms the quoted paragraph, and to the present writer it seemed justifiable to attempt the use of such objective tests in the industrial situation.

D. PSYCHOLOGICAL TEST BATTERY

1. *Details of Administration*

It will be seen that this task of forming an apparently ideal battery of tests was not one to be quickly or lightly completed, and the process of enquiry, discussion, and evaluation occupied five months. A preliminary trial was carried out at another factory in the same industry, where 24 men employed on a similar process served as the subjects. As a result of this trial, and in the light of questions and discussion, various administrative modifications were introduced into the procedure, but in general it was evident that such a battery of tests could safely be used, and that it aroused sufficient interest to ensure reasonable coöperation from this kind of subject.

The 15 tests of the final battery are listed in Table 1 in the order of administration, which was not varied during this programme. Times shown are approximate, the greatest variation being observed with the individual Rorschach.² Some tests admit of more than one score being extracted and this is shown accordingly; the total number of scores used was 19. (The numbers appearing in the first column are those used in the test and in all tables etc.) The following letters are used as a convenient means of indi-

²Rorschach results are not yet available.

TABLE 1
TEST BATTERY IN ADMINISTRATION ORDER

No.	Total time	App. Time	Name of test	Basis for use	Aspect	Type of mat.	Posture during test
13		4	Word Connection List	Crown/Malamud	n	P.P.	
2		10	Paper Form Board	U.S.E.S.	g k	P.P.	
5			Hand Dynamometer	Smedley	str.		
		4				Eqt.	
10			do.	Fessard	n t		
1		25	Dominoes	Army	g	P.P.	
18			do. (Special Score)	Heron	t		
4		3	"237" Test	Cattell/Gravely	p n	P.P.	
15		4	Worries Inventory	Bennett/Pressey	n	P.P.	
8		4	Peg Board	U.S.E.S.	n	Eqt.	
7			Track Tracer	Himmelweit	t		
17		12	do.	Heron	t	Eqt.	
9			do.	Lubin	n		
12		2	Static Ataxia	Eysenck	n	Eqt.	
11	70	2	Leg Persistence	do.	n t		
	7	7	Interval for tea and cigarette				
—		35	Individual Rorschach				
3		9	Vocabulary	Raven	g v	P.P.	
14		4	Annoyances Inventory	Bennett/Pressey	n	P.P.	
16		4	Interests do.	Heron/Pressey	t	P.P.	
6	58	6	Finger Board	U.S.E.S.	mf n	Eqt.	
	135		Additional				
19			Index of Body Build	Rees-Eysenck	t		
Jan. 9-March 28, 1950.							

cating the aspect(s) of personality which earlier research by others had indicated as being assessed by that score on that test:

g: general mental capacity, or "intelligence."

v: ability to deal with verbal material.

k: ability to deal with two-dimensional spatial relations.

n: neurotic tendency, or "neuroticism."

t: temperamental or affective variation.

m: manual dexterity.

mf: fine manual dexterity.

p: persevere tendency or "rigidity."

Few prior assumptions by the writer were involved, and it remained part of the empirical and methodological nature of this research to further knowledge about these instruments.

The subject did not leave the room during the procedure; tea was served from a thermos jug, and the interval was made as sociable as possible. The

psychologist's assistant left the room naturally after the interval, taking the tea-things with her.

It will be observed that the tests involving the use of equipment (Eqt.) were as far as possible dispersed in alternation with groups of pencil-and-paper (P.P.) tests; and that the whole session was divided into three sections in relation to the posture of the subject whilst doing the tests. Possibly as a result of these administrative precautions, many men expressed surprise when they were told that they had finished the session.*

Meetings were arranged with each shift, at which the psychologist explained what he wished to do, and answered questions about the nature and purpose of this portion of the research. It was stressed that there would be a considerable interval between the conclusion of the testing programme and the presentation of the findings, due to the statistical analysis involved, but that further meetings would be held whenever he had anything to tell them. Immediately preceding the initiation of the testing programme, a sheet of "Notes of Procedure" was prepared, and as each man was advised of his turn having arrived, he was given a copy of these notes by the Shop Steward.

The Foreman and the Shop Steward were invited to go through the testing programme before the men started; the latter accepted the invitation, and expressed confidence that there was nothing in the battery which should cause any trouble. His prediction proved to be correct, and at meetings held later several men on each shift indicated their willingness to "come again any time," to which there was general assent. This was in fact put to the test about nine months later, and 100 per cent response was obtained from the 78 men still in the firm's employment.

All 80 men were seen in the same room during a period of 11 weeks in the first three months of 1950. In order to avoid unknown effects on the state of mind of the subjects which might be associated with these portions of the working week, no testing was done on either Monday mornings or Friday afternoons, and the sample was divided equally between morning and afternoon sessions. Testing times were standardised at "ten minutes after the arrival of the men at the factory" for the afternoon interviews, and "ten minutes after the end of the half hour break" for the morning interviews. All the subjects completed the entire programme.

As mentioned above, the men were seen again about nine months later, for a brief session lasting 35 minutes. The object of this was to obtain re-test data for certain items, and also scores in three additional tests.

Details of raw scores obtained appear in Table 2, and the tests are described briefly in the next section.

TABLE 2
PSYCHOLOGICAL TESTS—RAW SCORES

No.	Name of test	Mean	σ	Median	Range
1	Dominoes	24.84	6.70	25	12- 44
2	Paper Form Board	17.38	6.28	16	3- 34
3	Vocabulary	27.59	5.19	28	13- 39
4	"237" and reversed (total)	(a) 36.39 (b) 36.87	7.43 7.57	36 36	17- 53 16- 54
5	Strength of Grip (Kg.)	(a) 46.59 (b) 46.31	5.54 5.07	45.5 46	36- 65 35- 63
6	Finger Dexterity	21.73	4.14	22	11- 30
7	Track Tracer, 1st Time (secs.)	43.38	11.56	43	21- 75
8	Manual Dexterity	83.90	7.10	84	68-100
9	Absol. Goal Discr. (secs.)	9.99	4.72	10	0- 25
10	Hand Persistence (secs.)	(a) 64.55 (b) 53.78	19.43 19.36	62.5 53	17-119 15- 92
11	Leg Persistence (secs.)	(a) 74.27 (b) 62.76	44.22 32.94	65.5 59.0	15-195 12-183
12	Static Ataxia (ins.)	(a) 1.32 (b) 1.37	0.52 0.52	1.2 1.3	.4- 2.7 .6- 3.3
13	Word Conn. List	13.88	6.58	12	3- 32
14	Annoyances	26.31	10.86	25.5	8- 56
15	Worries	(a) 17.25 (b) 17.86	4.71 4.65	13 13	0- 56 0- 84
16	Interests	(a) 47.15 (b) 48.79	18.21 19.66	47 48	7- 94 11- 91
17	Accuracy Cost	126.15	19.81	126	83-172
18	Appr. to Timed Test	17.10	11.10	17.5	1- 44
19	Index of Body Build	96.99	6.32	96.5	82-112
20	Letter Series	(b) 6.82	3.79	6	1- 19
21	S-Z-SZ (total)	(b) 39.21	11.43	38	14- 64
22	Food Aversions	(b) 4.13	2.29	4	0- 10

Notes: $N = 78$ for data obtained on occasion (b): $N = 80$ for data obtained on other occasions.

Variables 17, 18, and 19 are ratios.

2. Descriptions of Psychological Tests

a. Dominoes. This was selected as a suitable non-verbal test of g with which few if any of the subjects would be familiar. According to Vernon (42) it has a g loading of .86, a reliability of about .90, is free from visuo-spatial element, and has a negligible educational loading. It was used by the British Army as an alternative group test to Progressive Matrices, with a similar 20-minute time limit. Except that it was here used as an individual test, its administration was strictly in accordance with the Army instruction sheet. The maximum score is .48.

b. *Paper Form Board*. This test appears in the pencil-and-paper section of the United States Employment Service "General Aptitude Test Battery" as Section *F* (39). It appears to be a further modification of the Revised Minnesota Paper Form Board and contains 49 multiple-choice items. It is subject to a time-limit of seven minutes.

c. *Vocabulary*. The "Synonyms" portion (Senior) of Raven's Mill Hill Vocabulary test (33) was used, under untimed conditions. It contains 34 items, but 10 points are added to each score for the 10 easy items which have been omitted from this form. It is therefore scored 0-44.

d. *Writing "237" and reversed*. This is the familiar "perseveration" test of Cattell (4). The subject is asked to write the number "237" as many times as he can in one minute, and then to write it *reversed* as many times as he can in a second minute. The ratio as used by Cattell was not employed on this occasion, but instead the combined "production" score.

e. *Strength of Grip*. The score is the best of six trials, three with each hand, using a Smedley Dynamometer measuring in kilograms.

f. *Finger Dexterity*. The test used was that from the GATB, Section *O* (assembly). The task involves the transfer of rivets from the upper to the lower half of a pin-board, threading a washer on to the rivet en route. After adequate demonstration and practice, the test-score is the number attempted in 90 seconds, the subject being unaware that mistakes are not to be penalised.

g. *Track Tracer, 1st time*. This score is the time taken, in seconds, to traverse the Cambridge Track Tracer when instructed to "trace the path with the stylus between the pair of holes as quickly and as accurately as you can." Considerable care was taken to give equal value to the words "quickly" and "accurately" (22).

h. *Manual Dexterity*. This test is Section *M* (Placing) of the GATB, and involves the bi-manual movement of pegs from the upper to the lower part of a board. Three trials of 15 seconds each are given, after adequate demonstration and practice, and the score is the total number of pegs *moved*, irrespective of whether they reach the correct hole or not, the examinee being unaware of the absence of a penalty.

i. *Absolute Goal Discrepancy*. This score was obtained by summing five discrepancies between the subject's target and his immediately-previous actual performance on the Track-Tracer, measured in seconds, regardless of direction.

j. *Hand Persistence*. The score used was the better of the two obtained by asking the subject, for each hand separately, to maintain a grip on the

Smedley Dynamometer equal to two-thirds of his maximum grip strength for the hand in question [cf. Fessard *et al.* (14)].

k. Leg Persistence. This is the simple test referred to by Eysenck (9), scored as the number of seconds the seated subject is prepared to hold his leg fully extended a few inches above a nearby chair. On this occasion the score used was the better of the two obtained after asking the subject to do the test first with the right leg and then with the left, without footwear.

l. Static Ataxia. This test is usually carried out as a preparatory measure before the Eysenck application of Hull's Body-Sway Suggestibility Test (9). The subject (in his normal footwear) was asked to stand still with toes and heels together, hands loosely by the sides, and wearing blacked-out R.A.F. goggles. Great care was taken to ensure that no man was tested during periods of "Music While You Work" [cf. Edwards (8)]. The score is the sum of maximum forward and backward sway, measured to .1 inch by means of a simple ataximeter designed by the writer. The reading was taken after one minute.

m. Word Connection List. This test is that devised by Crown (6) by a modification of the 200-item Malamud word association list. Each of the 50 items consists of a stimulus word in block letters followed by two response-words in small letters. The 50 sets were printed together on one side of a foolscap sheet, prefaced by simple instructions and an example. These were read aloud to the subject as he read through them himself. There was no time limit, but each subject was told to do it as fast as he could. The score is the number of "neurotic" responses underlined by the subject.

n. Annoyances.

o. Worries.

p. Interests. These three tests are modifications by the writer of the adaptation by Bennett (2) of the familiar Pressey X-O tests. No. 14 asks the subject to mark items in a list of 60 common annoyances; No. 15, to cross out any word in a list of 100 which happens to be the name of something about which he has ever worried or felt nervous or anxious; and No. 16, to underline any word in a list of 100 which happens to be the name of any thing or activity which he likes or in which he is interested.

q. Accuracy Cost. This is a score derived by the writer from the use of the Track Tracer. The first eight trials were all carried out under conditions in which the subject was quite free to emphasise speed or accuracy in his performance, being asked to do both (see Test *g* above). On the ninth (and last) trial, he was told, "This time, I want you to trace the path to

the centre *as quickly as you can.*" The "Accuracy Cost" is then estimated as follows

$$\frac{\text{Shortest time under Choice Conditions}}{\text{Time under Speed Conditions}} \times 100$$

r. Approach to Timed Test—(1). The number of Dominoes items correct was expressed as a percentage of the number attempted: i.e., $\frac{100C}{A}$. (2). The formula for the best-fit line was calculated for the regression of $\frac{100C}{A}$ on *C*. (3). For any given value of *C*, it was then possible to compute a "predicted" value of $\frac{100C}{A}$. (4). The differences between "obtained" and "predicted" values of $\frac{100C}{A}$ were rendered all positive by the addition of a suitable correction term, providing a range of deviation scores 1-44.

s. Index of Body Build. The index employed is that devised by Rees and Eysenck (34), a high figure indicating the tall/thin (or "leptomorphic") end of the continuum.

t. Letter Series. This Thurstone-type test forms Section *E* of the GATB, and consists of 24 items each seven letters in length, for which a four-minute time-limit is allowed. It provides three examples of different types of series and eight practice items.

u. S + Z + SZ (*S* + reversed *S* + alternate *S*, reversed *S*). The subject was asked to write capital *S*'s for 15 seconds, then to write them in reverse for 15 seconds, and finally to alternate for 15 seconds.

v. Food Aversions. The test consisted of a list of 18 food items drawn from 20 used by Gough (15). Two of the 18 were altered slightly to make them intelligible to a British population.

E. STATISTICAL TREATMENT OF RESULTS

1. Preliminary

Following Vernon (41) and Thurstone (37), all raw scores were converted into normalised percentile scores, using nine groups to facilitate Holterith processing. This treatment was indicated in view of the variety of score-distributions obtained, which ranged from near-normal to extreme platykurtic, with varying degrees of skewness. It also facilitated later com-

TABLE 3
INTERCORRELATION MATRIX OF 22 PSYCHOLOGICAL TESTS, ONE RATING AND TWO CRITERION VARIABLES

No.	1	2	3	4	5	6	7	8	9	10	11
1 Dominoes											
2 Paper Form Board	High										
3 Vocabulary	High	53									
4 Writing "237" and reversed	High	39	23								
5 Grip	High	40	40	38							
6 Finger Dexterity	Strong	14	24	06	09	19					
7 Track Tracer 1st time	High	07	08	-02	05	34	07				
8 Manual Dexterity	Fast	-03	18	-07	28	10	12	12			
9 Absol. Goal Discrepancy	Low	22	00	16	04	07	09	25	20		
10 Hand Persistence	Short	-06	-05	-04	17	14	09	-04	02	06	
11 Leg Persistence	Short	-12	-08	-07	-01	-03	08	-06	03	07	
12 Static Ataxia	High	02	-01	05	-04	14	09	04	11	15	48
13 Word Conn. List	High "neur."	02	-01	05	-04	14	09	04	11	16	24
14 Annoyances	Many	-43	-17	-33	-18	17	-03	-12	14	-22	12
15 Worries	Many	-06	-03	-07	02	-19	04	-10	-05	00	-03
16 Interests	Many	12	24	06	03	-05	00	-07	-11	07	16
17 Accuracy Cost	Many	-03	-01	-22	-19	-14	-05	03	-02	02	07
18 Appr. to Tined Test	Low	-12	-17	-01	-19	-06	-07	11	02	-07	-09*
19 Index of Body Build	Quick	-06	24	-12	22	17	32	23	10	09	-03
20 Psychiatric Rating, M.H.	Short/Round	-20	00	-05	07	12	17	11	06	00	-13
C1 Productivity	Good	06	-05	-01	12	-09	11	13	04	-01	-03
C2 Job Adj. Rating, Superv.	High	10	14	01	18	17	24	22	19	14	-03
20 Letter Series	Poor	-06	-07	11	-03	-07	-15	-23	-16	-03	05
21 Writing S-Z-SZ total	High	74	57	44	36	16	10	08	00	-03	-23
22 Food Aversions	High	33	28	30	75	25	20	24	17	06	10
Age	Many	-05	00	-20	10	-13	-12	-16	-03	-08	18
	Old	-37	-28	14	-32	-29	-33	-27	-16	01	-01

TABLE 3 (Continued)

No.		12	13	14	15	16	17	18	19	R	C1	C2	20	21	22
1	Dominos														
2	Paper Form Board														
3	Vocabulary	High													
4	Writing "237" and reversed	High													
5	Grip	High													
6	Finger Dexterity	Strong													
7	Tracer 1st time	High													
8	Manual Dexterity	Fast													
9	AbsoI. Goal Discrepancy	High													
10	Hand Persistence	Low													
11	Leg Persistence	Short													
12	Static Ataxia	High													
13	Word Conn. List	High													
14	Annoyances	Many "neur."	15												
15	Worries	Many	06	07											
16	Interests	Many	12	05	31										
17	Accuracy Cost	Many	16	11	38	37									
18	Appr. to Timed Test	Low	05	10	18	11	19								
19	Index of Body Build	Quick	02	02	05	00	05	06							
20	Psychiatric Rating, M.H.	Short/Round	17	—01	08	—02	03	16	—03						
21	Productivity	Good	21	—21	05	—14	06	—09	15	26					
22	Job Adj. Rating, Superv.	High	07	—05	02	01	08	—08	04	—03	—03				
23	Letter Series	Poor	22	10	12	22	34	19	—13	04	06	—30			
24	Writing S-Z total	High	01	—40	—04	08	05	—04	01	—03	02	02			
25	Food Aversions	High	00	—17	07	—01	—09	—19	12	—03	00	07	08	14	
26	Age	Many	14	28	—01	21	—16	—22	04	07	08	14	—05	32	
27		Old	20	20	—03	—13	—27	—06	04	02	10	—19	—43	—21	—29

Notes: The effects of Age have been held constant throughout by partial correlation.

Except for Items R and C2, all raw scores have been converted to normalised percentile scores.

Item R is on a 4-point scale; Item C2 on a normally-distributed 5-point scale.

Except for Variables 20, 21, and 22, $N = 80$; for these three variables, $N = 78$.

"SE of zero r " is .112; an r of .22 is significant at the .05 level, one of .28 at the .05 level.

bination of test scores. Differences between extreme raw scores tend to be minimised by this treatment. Pearson product-moment correlations were calculated between each pair of variables in a matrix consisting of age, the test scores, a psychiatric rating, and the two main criteria of occupational adjustment.

In order to permit the relationship between other variables being examined independently, the effects of age were held constant by the method of partial correlation. As this method assumes linearity of regression between the variable which is being held constant and each of the other two variables the relationship between which is being examined, graphical inspection was employed wherever there were any *a priori* grounds for suspecting that this condition was not being met. No evidence of curvilinearity was found in any of the cases examined. The final matrix thus obtained is shown as Table 3, the correlations with age being included as a separate line below the matrix.

2. Factor Analysis

This matrix (consisting at first of 19 tests, the rating and the two criteria) was factor-analysed using Burt's "simple summation" method, with guessed communalities in the diagonal cells. Four factors were extracted, and one iteration was carried out with revised guesses. When the data on three further tests became available nine months later, a fresh analysis was carried out, the opportunity being taken to revise the guesses once more.

a. The following criteria of factor significance were applied (cf. Vernon, 43):

(1) *Guilford* (17). "That the product of the two highest loadings should not fall much below the *SE* of zero *r*." The product in question was .009 ($.32 \times .31$), *SE* zero *r* being .112.

(2) *McNemar* (26). That $\sigma_1 = \frac{\sigma_{res}}{1 - h^2_s}$ should be greater than *SE* zero *r*, where h^2_s is the mean communality for the *s* factors extracted." [Vernon (43) omits the diagonal entries and takes the mean residual as zero, which has been done on this occasion.] This gives:

$$\sigma_1 = .118; SE \text{ zero } r = .112.$$

In a discussion on the data, Professor Vernon agreed that in view of the clear cluster of similar tests, and the value of the factor for rotational purposes, it was a case in which to give the factor the benefit of the doubt, and leave it in.

b. *Rotation of Axes* (see Figure 1). The Dominoes Test (No. 1) was

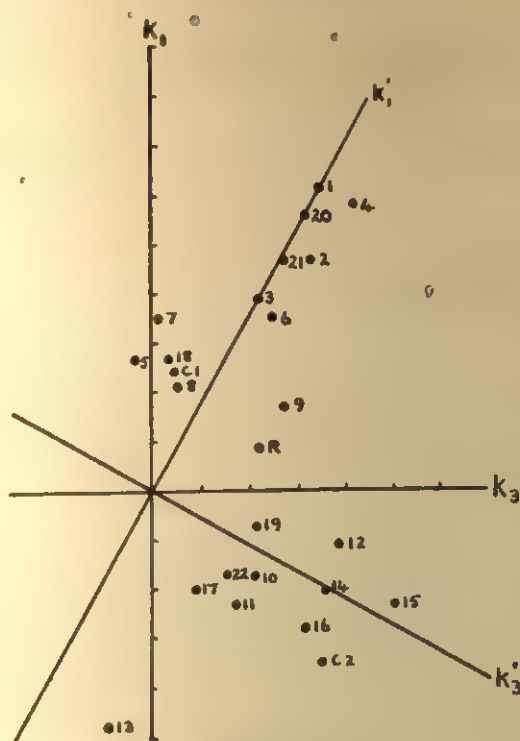


FIGURE 1

RELATION BETWEEN ORIGINAL LOADINGS OF FIRST AND THIRD FACTORS, SHOWING AXES FOR FIRST ORTHOGONAL ROTATION

the obvious reference vector for the first factor (k_1) and rotations to it were carried out as follows:

- (1) k_1 with k_3 , $29^\circ R$, to give k_1' and k_3'
- (2) k_1' with k_2 , $16^\circ L$, to give k_1'' and k_2''
- (3) k_1''' with k_4 , $23^\circ L$, to give k_1''' and k_4'

Plotting k_2' against k_4' provided the familiar situation in which a rotation of 45° produces a psychologically more meaningful result, and this was therefore carried out next:

- (4) k_2' with k_4' , $45^\circ L$, to give k_2'' and k_4''

Plotting k_3' against k_4'' , passing an axis through the centre of the same cluster of tests as before, having high loadings on k_4 , also maximised the number of near-zero loadings on both factors (16 on k_3 , 15 on k_4):

- (5) k_3' with k_4'' , $9^\circ R$, to give k_3'' and k_4'''

This provides a rotated solution for k_2 and k_3 which has not involved any

interpretation of either factor. Factor loadings and communalities appear in Table 4, and the final relation between Factors I and III is shown in Figure 2.

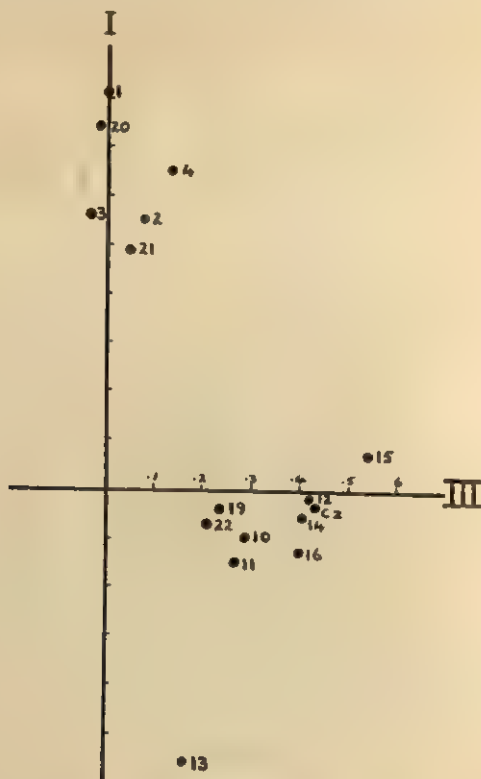


FIGURE 2

RELATION BETWEEN PRINCIPAL LOADINGS OF FACTORS I AND III, AFTER FINAL ROTATION

c. Interpretation of Factors. For this purpose the four tests with the highest loadings will be employed as a general rule. Loadings less than .22, equivalent to the $P = .05$ level of significance for a zero-order correlation where $N = 80$, are usually disregarded unless special interest attaches to the test in question in relation to other tests with high loadings on that factor. Full consideration should however be given to the factor-pattern as a whole, and for this purpose reference should be made to the relevant data.

(1). Factor I: Dominoes	.81
Letter Series	.74
Vocabulary	.56
Paper Form Board	.55

TABLE 4
FACTOR LOADINGS AND COMMUNITIES

[illegible]

This is clearly a factor of general mental ability or "g," providing loadings on well-known tests very similar to those reported from a variety of sources.

(2). Factor IV: Finger Dexterity	.50
Approach to Timed Test	.48
Manual Dexterity	.47
Track Tracer, 1st time	.43

But for the inclusion of the non-manual score, which (as described in Section D, 2, *h*) was derived mathematically as a by-product of the Dominoes test, one might have concluded that this was a factor of "motor-coordination" or "dexterity." As it is, however, it seems far more reasonable to describe it as "speed of approach," and to regard the tests as assessing a characteristic mode of personality.

(3) (a). Factor III: Many Worries	.54
High Static Ataxia	.42
Many Annoyances	.41
Many Interests	.40

This would appear to be Eysenck's "neuroticism" or "emotional instability," the only inconsistency being found in Interests, having regard to Bennett's data (2) which showed "neurotics" to respond with significantly *fewer* interests than "normals." It is however possible that she was dealing with a very different population from that studied here, and under different conditions of motivation in responding to these tests. In a sample of 480 adolescents studied by the writer (19) those who marked many items on the Interests list tended to be those who expressed much interest in the care of children, much pity for people and animals in distress, and some evidence of a highly-developed "superego" in the psychoanalytic terminology. They contrasted clearly with those exhibiting "ascendant," "masculine," and "extraverted" tendencies who marked few items. This is in agreement with Vernon's (39) findings from a factor-analysis of the Boyd personality questionnaire. He describes a factor as involving a tendency to "*Carefreeness*," which shows loadings for "lack of definite interests" among the following: "shrinking responsibility; suggestibility; lack of freedom from Worries, from self-consciousness, and emotional thinking; and tenseness." There is some evidence (11) that dysthymics (neurotic introverts) tend to claim more Annoyances than do hysterics (neurotic extraverts).

The remaining tests claiming to distinguish "neurotics" from "normals" which have small loadings on this factor are:

Hand Persistence Low	.29
Leg do. do.	.27
Short-Round Body Build	.24
Many Food Aversions	.21
Word Connection List	.17

This group is, by contrast, reminiscent of the extravert or hysteric end of the same continuum, evidence being available for such trends from the same source just quoted above. (The Word Connection List has a loading of $-.56$ on Factor I, which may help to explain why its loading on the present factor is so low, if one takes the reasonable view that the more intelligent of the emotionally unstable respondents have "seen through" the test and—consciously or not—avoided the "neurotic" responses.) Before proceeding further with the interpretation of this factor, it may be desirable to consider Factor II, which presents an interesting problem involving some contrasts.

(b). Factor II: Hand Persistence Low	$+.46$
Leg Persistence Low	$+.44$
Many Food Aversions	$+.42$
Word Connection List	$+.33$

It will at once be obvious that this group of tests with the *highest* loadings on Factor II are nearly the *same* group as have *low* loadings on Factor III. Combining the observations, it might be suggested that Factors II and III together represent a *single* psychological entity—"emotional instability"—of which tests with high loadings in Factor II and low loadings in Factor III emphasise the "hysteric" tendency, and those with high loadings on Factor III emphasise the "dysthymic" tendency.

An alternative and more likely interpretation would be to regard Factor II as "extraversion—introversion" or Eysenck's "hysteria-dysthymia" in an attenuated form such as would be expected in a mainly "normal" group. The group of tests with high positive loadings would identify the "hysteric" pole satisfactorily, but attention must be drawn to the possible inconsistencies represented by the group of items with small *negative* loadings on Factor II. The presence of "Good Psychiatric Rating" is due to its correlational association with "Short-Round Body Build" ($+.26$) and "Low Absolute Goal Discrepancy" ($+.35$). These were in fact the only correlations involving this rating which achieved the .05 level of significance. This is perhaps the point at which to note that this four-point Psychiatric Rating of "mental health" was obtained under conditions which differed quite radically from

those usually prevailing. The task was to "grade" a population consisting mainly of healthy people actually capable of carrying on an arduous job. The psychiatrist was denied by the exigencies of research design access to the criteria of occupational adjustment which he would normally use, and he could not expect the same degree of frankness and confidence to which he would rightly be accustomed in hospital or clinic where a therapeutic relationship was involved.

"Short-Round Body Build" would be expected to appear as a positive loading, in view of its recognised association with extraversion and hysteric tendency. It is worth noting, however, that in the zero-order matrix it shows no significant correlations with any of the test variables, an observation lending support to a dismissal of the loading as probably not significant. Such data as is available would also have suggested *positive* rather than negative loadings for "Accuracy Cost Low," and "Low Absolute Goal Discrepancy," and if account is taken of them in spite of their low loadings, no reasonable explanation occurs to the writer. However, it is all too easy to adduce such arguments as "insignificance of loadings" when they support a hypothesis or facilitate an interpretation, and despite a strong conviction that this is indeed a factor of "hysteria-dysthymia," the writer prefers to regard the present situation as confused by this cluster of low negative loadings on Factor II. In these circumstances it is probably better not to accord a name to this factor.

Factor III seems to justify recognition as a general factor of "neuroticism," "emotional instability" or "emotionality" in the attenuated form to be expected from an analysis based upon an essentially "normal" population.

3. *Further Comments on Certain Individual Tests Arising Out of the Statistical Analysis*

a. *Paper Form Board*. This had a loading on Factor I (*g*) of .55, contrary to the assumption which might be regarded as implicit in the handbook of the General Aptitude Test Battery.

b. *Writing "237" + reversed: S + Z + SZ*. These two tests are both heavily loaded on Factor I, obtaining figures of .65 and .49 respectively; they also have loadings of .33 and .27 on Factor IV (Speed of Approach). Insofar as the method of scoring still indicates low perseveration, this may be regarded as appearing in loadings of .28 and .27 respectively in Factor II if considering it in terms of extraversion-hysteria.

c. *Strength of Grip*. This has a loading of .28 on Factor IV (Speed of Approach), which, while not necessarily significant, drew the writer's atten-

tion to the quotation from O'Connor forming the basis of a paper by Moore and Sturm (27); "The laboratory is fairly sure 'Grip' is a measure of that important intangible called drive." Using a population of 139 male college students, and onlooker-incentive, they obtained Smedley dynamometer grip strengths for preferred hand. They reported that "grip strength as measured had no statistically significant relationship to any one of the five personality factors on the Guilford-Martin Inventory of Factors GAMIN." However, examination of their data reveals a correlation of $+.20$ with Factor M ("masculinity"), which for a population of 139 is significant at the .05 level.

The present finding of a small loading for Grip on a factor styled "Speed of Approach" may perhaps be regarded as related psychologically to the American concepts of "masculinity" and "drive."

d. *Finger Dexterity*. In this population, this test shows no loading on Factors II or III, with which other tests claiming to distinguish "neurotics" from "normals" are correlated. It has, however, a small *g* loading of .21, in addition to its major rôle in Factor IV. Similar remarks apply to the next test.

e. *Manual Dexterity*. This has no loading on any Factor other than IV.

The general comment would seem warranted that dexterity tests shown to be useful in discriminating "neurotics" with certain populations under specified motivational conditions should not henceforth be regarded as being valid for this purpose with factory workers. This is also true of the "237" and "SZ" tests in the light of the present findings.

f. *Hand Non-persistence and Leg Non-persistence*. Tizard and O'Connor (38) discuss at some length the conflicting evidence on the relationship between persistence, as here defined, and intelligence as measured by tests. In the present study, both these tests correlated consistently, but usually not significantly, with cognitive tests, as shown in Table 5.

That there may be a very small relationship is supported by the figures for Letter Series, but observation of the men while doing this test convinced

TABLE 5
"NON-PERSISTENCE" AND "INTELLIGENCE"

	Hand persistence low	Leg persistence low
Factor I	—10	—15
Dominoes	—06	—12
Paper Form Board	—05	—08
Vocabulary	—04	—07
Letter Series	—23 ($P = .09$)	—20

the writer that many of them found it discouraging. If this is true, it may be that the apparent relationship reported is a function of the element of "persistence" required to do such tests; though it is not at all clear that the kind of "persistence" involved is the same in both cases. All that can be said with confidence is that there appears to be a small significant relationship between general mental ability as assessed by tests and willingness to persist in physical discomfort when free to give up.

F. CONSTANCY OF ORECTIC TESTS

In the penultimate paragraph of "Dimensions of Personality," Eysenck (9) says: "We know nothing about the relative fixity with which a person is likely to retain his position on the neurotic continuum, or on the introverted continuum." In the present investigation provision was made for the examination of this problem by re-testing the group approximately nine months after the first occasion. It was possible to obtain time with the men sufficient to include seven items. The re-test correlations are grouped in Table 6, in order of magnitude, together with the loadings of each test on each factor, where these exceed the .05 level of significance for a zero-order correlation where $N = 80$.

TABLE 6
RETEST COEFFICIENTS AND FACTOR LOADINGS

	r_{12}	I	II	III	IV
4. Writing "237" and reversed	.92	.65	.28		.33
5. Strength of Grip	.78				.28
16. Interests	.73		.28	.40	
11. Leg Persistence	.61		.44	.27	
10. Hand Persistence	.53		.46	.29	
15. Worries	.54			.54	
12. Static Ataxia	.42			.42	

It will be noted that:

- The test with the highest re-test correlation shows a substantial *g* loading (Factor I).
- The next item is a mainly physical measure.
- Neither of the two highest have a loading for "emotional instability" (Factor III).
- The test with the lowest re-test correlation shows a loading on Factor III only.
- Tests having loadings on both Factors II and III occupy a middle position.

There is on this occasion no way of proving the relative extent to which

test unreliability and change in subject-response respectively contribute to the depression of the coefficients shown here. The pattern of figures in this table may be a chance phenomenon; but if it is not, there is some basis for a hypothesis that objective tests of temperament and emotional stability, even if reliable in the usual psychometric sense, will not provide re-test results over long periods which are as constant as those obtainable with cognitive tests. Discussion of this is deferred to the next section.

G. DISCUSSION AND CONCLUSIONS

Once a decision had been taken, for reasons which have been elaborated in Section C, to employ a mixed battery of psychological tests for the purpose of assessing various aspects of the personalities of the men being studied, the investigator was faced with the problem of identification. Unlike the user of intuitive methods of assessment, he is not able to take a single orrectic test and to say without qualification that it measures a certain trait of personality. Even in the cognitive aspect a test which appears to involve almost entirely the perception of relations and the education of correlates is safest named a measure of *g*; and it will often³ not correlate significantly (within an average group) with a rating of "intelligent-unintelligent" as assessed intuitively during an interview lasting an hour. One such test was included in the battery, together with tests of "reasoning," "verbal-educational" ability, and "spatial" ability. In the light of existing data concerning these tests, there was a reasonable expectation that if factor analysis were employed as a means of reducing the 22 tests to a smaller number of variables, they would successfully identify a factor of what might be called "general mental ability." This expectation was realised, and final loadings closely resembled those obtained in other studies.

Similarly, tests were included which had been reported as discriminating significantly between groups of people—mainly soldiers—classed by psychiatrists as "neurotic" and by absence of severe signs and symptoms as "normal." Factor analyses of batteries of such tests had shown that they tended to provide loadings on a general factor described by Eysenck as "neuroticism" or "emotional instability." Although the present population was the first to consist entirely of unskilled industrial workers of whom the majority could be expected to be "normal"; the battery of tests provided for the appearance of a factor of "general mental ability"; and the age range was by far the widest ever studied by these tests, it was hoped that Eysenck's factor would

³For an exception, see Hanna, J. V. Estimating intelligence by interview. *Educ & Psychol. Meas.*, 1950, 10, 420-430.

re-appear, even if in a somewhat attenuated form. This expectation was also realised, although some difficulties were encountered in relation to another well-known dimension, that of "extraversion-introversion." It was already known from earlier studies by Eysenck and his collaborators that several tests which discriminated between groups of "neurotics" and "normals" also showed some discrimination between groups of "hysteries" and "dysthymics." These are regarded as "neurotic extraverts" and "neurotic introverts" respectively. Some of these factorially impure tests were included in the present battery in the hope that this third factor would appear in the analysis. It did so, but presented enough inconsistencies to preclude identification with confidence. This is precisely the same result reported by Eysenck (10), p. 49: "However, not all the tests are in agreement with this (extravert-introvert) hypothesis, and little emphasis is laid on the possible identification of this second factor."

A fourth factor was also extracted for which no tests had been deliberately included in the battery. This was identified as involving a characteristic mode of personality concerned with speed of approach to a task. Two of the scores showing the highest loadings on this factor were derived from motor coördination tests which had been included in this battery in the light of previous evidence that "neurotics" performed less well than "normals." Scores obtained from tests involving the total production of ordinary and reversed letters or numbers had provided a similar result. On this occasion, all these tests failed to obtain a significant correlation with the factor identified as "emotional instability"; in fact, the small loadings obtained were negative.

One of the principal conclusions to be drawn under this heading is that very great caution should be exercised in the use of raw scores derived from orectic tests of the kind which have been reported in this study. The age-range and sophistication of the population, the manner of administration of the tests, and above all the motivation governing response would appear to be of quite decisive importance. Unfortunately, until a large number of further studies have been carried out with very great thoroughness, it is almost impossible to predict the direction or extent of influence of these extraneous variables.

The data on re-test constancy of objective orectic tests stressed the need for longitudinal studies and repeated retesting of a kind seldom encountered in the psychometric literature. [The recent work of Heim (18) on cognitive tests is in the right direction.] Meanwhile there seems to be a strong case for suspending the use of the term "reliability" in connection with orectic

measures, especially when the interval is substantial. The writer suggests "constancy coefficient" as an alternative.

Future studies in the field of objective testing of temperament and emotional stability must involve a wide selection of populations and of motivational conditions. We have already reached the point where it is unsatisfactory to confine our attentions to relatively accessible groups such as soldiers, students, or hospital patients. Even further studies of unskilled workers in industry, such as will in due course be reported by the present writer and his colleagues, are still not enough to provide the rounded picture that is needed. Less accessible groups may for all we know contain people, the dynamics of whose personal-social relationships are so different from those of our present subjects, who would provide response patterns to our tests which differed as much as has been observed between soldiers and industrial workers.

Meanwhile, in spite of a keen awareness of the shortcomings of the present tools, one can recognise that the need for them remains so long as other approaches continue to provide results even less convincing. This investigation appears to have advanced our knowledge in the direction of a more precise recognition of what requires next to be done; it has revealed weaknesses not hitherto made explicit, though perhaps suspected; and it has provided results which in the judgment of the writer are both chastening and encouraging.

H. SUMMARY

1. This paper reports an objective study of personality in a group of male unskilled factory workers, whose ages ranged from 22 to 64 years.
2. Twenty-two cognitive and orectic tests were administered individually under carefully prepared and standardized conditions as part of a larger project.
3. A factor analysis of the matrix of intercorrelations was carried out and four factors extracted which accounted for 30 per cent of the variance. After five orthogonal rotations three of these factors were readily identified.
4. The present findings support and extend work by others, while providing correctives where individual tests are concerned.
5. Attention is directed to the problem of constancy in orectic tests, and suggestions are made in the light of fresh data in this paper.

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THE DEVELOPMENT OF A SCALE TO MEASURE ANTI-NEGRO PREJUDICE*

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A. THE PROBLEM

In connection with a study (1) of the relative effectiveness of several versions of an experimental film in changing attitudes towards Negroes, a scale measuring anti-Negro prejudice was required. The experimental population was to comprise principally a relatively homogeneous group of students in an eastern state college. Furthermore, it was thought likely that both inter-group and intra-group changes in pre- and post-test comparisons might be rather small on any scale. In addition, the film tapped a wide variety of issues, including the economic condition of the Negro, the Negro and crime, his relation to law and legal processes, his health, job opportunities, educational opportunities, housing, and voting rights, the size of the Negro population, and his personal and social relationships with whites.

What was required, then, was a rather sensitive scale that would permit the reliable identification of small changes, and that would reflect responses towards the various issues touched upon.

To this end, a scale was constructed from a large item pool that was systematically reduced by application of, first, Thurstone's (8) method of equal-appearing intervals, and, second, Likert's method (7) of item selection. A refined scale based on these procedures was employed in the film research, but, with an eye towards future use a subsequent analysis to identify *uni-dimensional* scales in the Guttman (9) sense was undertaken.

This successive refinement procedure has been advocated and described by Edwards and Kirkpatrick (4, 5). It has the effect of identifying items that are (a) unambiguous, (b) spread over the attitude continuum, (c) discriminative as between subjects at various points along the continuum, and (d) measures of a relatively homogeneous function (after the Guttman scale analysis).

In this paper the methods employed in this scale development, together with some of the results, are reported.

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B. DEVELOPMENT OF ITEM POOL

A preliminary survey of the available published scales failed to reveal any that were completely satisfactory for the purposes intended. Since the experimental population was to be college students, it was felt desirable that the items reflect, or be geared to, formulations they might accept.

Therefore, an item pool was begun by going to the students directly. Thirteen areas were identified, and for each area three kinds of statement—a *True* statement, a *False* statement, a *Statement reflecting your attitude towards*—were collected.

These 13 x 3-39 statement types were divided into five forms, each comprising eight items (one type occurred twice in the set). The students were requested to write, for each item, a sentence of not more than 15 words. The protocols were completed anonymously. One form of the protocol is given in Table 1. Altogether, protocols were collected from 495 undergrad-

TABLE 1
PROJECT NO. 33: THE RESTRUCTURING OF ATTITUDES TOWARDS NEGROES

Your cooperation in the construction and validation of tests to measure attitudes towards Negroes is being requested. In each of the spaces below write a sentence, of the kind requested, of **NOT MORE THAN FIFTEEN WORDS IN LENGTH** on the topic indicated. Work as fast as you can. Be sure to fill in *all* spaces.

- a1. Write a **TRUE** statement about the economic condition of the Negro.
 - b2. Write a **FALSE** statement about Negro college students.
 - c3. Write a statement **REFLECTING YOUR ATTITUDE TOWARDS** Negroes and crime.
 - c4. Write a statement **REFLECTING YOUR ATTITUDE TOWARDS** Negroes and the law.
 - b5. Write a **FALSE** statement about the health of Negroes.
 - a6. Write a **TRUE** statement about Negroes and jobs.
 - a11. Write a **TRUE** statement about the voting of Negroes.
 - b12. Write a **FALSE** statement about the size of the Negro population.
-

uate psychology students and 149 sociology students, or a total of 3,220 statements.¹ The protocols were sampled, and sentences that seemed to be distributed from anti-Negro through neutral to pro-Negro were selected for each of the 13 areas. The sample of statements was conspicuous for an almost total lack of occurrence of the type of extreme item included in the Likert (7) or Levinson (2) scales. Furthermore, the tendency was for the statements to be slightly on the pro-Negro side. However, many statements charged on the anti-Negro side also occurred (e.g., "I do not like to eat

¹An attempt was made to score the protocols themselves, by considering each sentence as a projective reflection of the writer's attitude (see, for example, Campbell, 3). However, the frequency of stereotypic responses and the difficulty of the judgments required led the judges to give up the task.

at the same table with them," "They are all right as maids and butlers, but no other contacts are desirable," "They need white leaders to make good soldiers").

In addition to the items selected from this pool, a few items were added from the Likert scale, the Negro sub-scale reported in Adorno, and the Thurstone scale. In editing the items, an effort was made to eliminate those which (a) were liable to be endorsed by individuals with opposed attitudes, (b) were obviously irrelevant, (c) appeared likely to be endorsed by everyone or no one, (d) and seemed to be ambiguous for any reason. They were edited to exclude terms not likely to be familiar to most college students (the method of construction resulted in very few such items). Items relating to fact—true or false statements of fact—were *not* generally excluded. The size of the Negro population is a fact, but the protocols showed that the perception of the content of this fact was closely related to over-all attitude towards Negroes. The relative incidence of Negro criminality may also be reduced to a series of statistical facts, but here again the perception of the incidence of such behavior seemed to be related to over-all attitudes. In all, a total pool of 372 items was prepared.

C. THURSTONE SCALING ANALYSIS

Fifty judges, comprising graduate psychology students and psychology and sociology department staff members were recruited to scale the items along a pro-Negro—anti-Negro continuum. Envelops numbered 1 through 50 were prepared. In each envelop was inserted a set of 5 x 8 cards, numbered I (pro-Negro), II, III, IV, V (neutral), VI, VII, IX (anti-Negro), and one with the legend AMBIGUOUS. Fifty sets of the 372 items were prepared, shuffled, and placed one set in each envelop, together with a sheet describing the Thurstone sorting procedure.

The card for AMBIGUOUS items was included to eliminate more readily items that raters had difficulty in placing.

The item sortings for each judge were checked for obvious reversals, and, on this basis, the data from nine judges was eliminated.

The judgments for 41 judges were punched on IBM cards, and tabulated to produce, for each item, the frequency of placement in each category and the cumulative frequency from each end of the scale, omitting the frequency for AMBIGUOUS.² It was then a relatively simple matter to calculate the Median, Q_1 and Q_3 values for each item.

²This procedure for the data analysis seemed to be several times more expeditious than any hand sorting procedure available. The punch-card machine operator in-

The 372 items were plotted in a bivariate distribution according to scale and *Q* values, and according to scale values and number of rejects. The

TABLE 2
DISTRIBUTION OF ITEM POOL BY MEDIAN SCALE VALUE, QUARTILE RANGE, AND FREQUENCY OF REJECTION AS "AMBIGUOUS"

	Median scale value									
Frequency rated "Ambiguous"	1	2	3	4	5	6	7	8	9	Total
0-2	2	8	31	16	1	10	54	47	11	180
3-5	1	1	12	19	5	17	15	4	4	78
6-8			5	12	7	7	3	2		36
9-11			2	4	9	6	3	1		25
12-14	1		2	3	4	6	2			23
15-17		1		4	2	1	1			9
18-20				1	4	2				7
21-23					2	1				3
24-26					3	2				5
27-29					6					6
Quartile deviations										
0-.19										0
.20-.39	1				6	4	1		2	14
.40-.59	1			4	14	10	17	3	5	59
.60-.79	1	4	15	25	11	30	47	33	6	170
.80-.99		3	23	16	5	4	11	12	2	76
1.00-1.19	1	2	11	11	2	3	1	1		32
1.20-1.39		1	3	4	2	1	1			12
1.40-1.59			1	2	1					4
1.60-1.79			1	1	1					3
1.80-1.99				1	1					2
Total	4	10	52	64	43	52	78	54	15	372
Total selected	3	3	5	14	3	23	32	26	11	120

distribution (Table 2) by scale values was almost rectangular from III through VIII, dropping off sharply at both ends.

serted a duplication master in the card-punch to reproduce the judge's number and the rating category number. Then this information was reproduced into each detail card, to which she added the number of an item. A new duplicating master was made for each category for each judge. In all, over 15,600 cards were punched. The punching and verifying was accomplished in about 25 hours.

The cards were then sorted by item number, and card counts, both non-cumulative and cumulative, were made for the rating categories by digit selection. The typical printed record was as follows:

Category	I	II	III	IV	V	VI	VII	IX	AMB.	TOT.
Item No.										
14 (Noncumul.)	7	8	12	12	1	0			1	41
(Cum. Up)	7	15	27	39	40	40	40	40		
(Cum. down)	40	33	25	13	1					

The median Q value was .73, but the distribution was rather skewed. A line was drawn at a Q value of 1.00, and all items were eliminated that exceeded this value. In addition, all items were eliminated which eight or more judges included in the AMBIGUOUS category. Finally, the remaining items for each scale category were compared, and close duplicates, particularly in Categories VII and VIII, were eliminated. A pool of 120 items, or about one-third the original pool, was thus retained. The distribution by scale value of these items is given in the last line of Table 2. It will be noted that the attrition rate was greatest in the mid (neutral) interval, primarily as a function of ambiguity. All the factual items were eliminated by falling in this category.

D. ITEM ANALYSIS

The 120 items were written in a form suitable for a Likert type analysis. Each item was followed by a five-point scale (strongly agree, agree, undecided, disagree, strongly disagree). A six-point forcing scale (without a neutral point) was not employed because the sheets were to be scored by the IBM test scoring machine. The item responses were scored 0, 1, 2, 3, 4, with 0 being used for the most "pro" response. The total score was the sum of the item scores.

In all, 435 usable papers were collected, from samples of social science students at four institutions: an eastern state college (*A*), a major university in a border state (*B*), a small college outside the District of Columbia (*C*), and a southern technical institute (*D*). It was believed that these four institutions would provide a gradient of mean scores from low (less discrimination) to high (more discrimination), from North to South. This comparison was made to test the over-all validity of the scale against a rough but reasonable criterion.

This scale met this test very well. The predicted geographical gradient appeared quite clearly, and the difference in mean score between each college and its northernmost neighbor was highly significant, with the exception of the difference between the two southernmost colleges.

Table 3 presents the means, mean differences, and critical ratios for the four schools. Analysis of the four frequency distributions showed that the score distribution for Schools *A* and *B* overlapped very slightly with those for Schools *C* and *D*. The obtained range of scores, over the four samples, was from 39 to 348, out of a possible range from 0 to 480 (64 per cent of the possible range).

Although the usual application of the Likert technique calls for com-

TABLE 3

MEANS, STANDARD DEVIATIONS, AND INTER-SCHOOL DIFFERENCES AMONG STUDENTS AT FOUR COLLEGES ON PRELIMINARY FORM A, NEGRO PREJUDICE SCALE

	No. of cases	Mean	SD	Mean differences and Critical ratios (in parenthesis) School			
				A	B	C	D
A	186	144.1	49.6	—	18.2 (2.32)	51.6 (7.98)	63.4 (9.91)
B	66	162.3	55.8			33.4 (3.82)	45.2 (5.20)
C	93	195.7	51.2				11.8 (1.58)
D	90	207.5	49.6				

parison of the responses to the items by high and low (total) score groups, the availability of a test scoring machine equipped with a graphic item counter, and IBM tabulating equipment, made it feasible to calculate Pearson product-moment correlation coefficients for each item, thus retaining all the data and avoiding the attenuating assumptions involved in techniques calling for a reduction of the data to two-by-two tables. This analysis made it possible by visual inspection of the tabulated bivariate frequency tables to determine rapidly not only the correlation between total score and item score, but also whether the regression between total score and item response was linear, i.e., whether total score increased directly with increased prejudice in the item response. This analysis was made for the samples from Schools A ($N = 186$) and C ($N = 93$).

In addition, for each item the critical ratio of the difference in item score between Schools A and C was calculated.

Those items were selected that had, in each sample, correlations with total score of .4+ or more, and critical ratios of the difference in item means of 1.96 or more.³

The resulting pool of items was then studied for bunching in the scale intervals and overlap. A test of 38 items (Form C) was thus devised: the items had significant intra-sample validity and significant inter-sample validity. The intra- and inter-sample item validities are reported in Table 4.

It may be noted that few items in the extreme "pro" scale category, and none in the "neutral" category, survived the analysis. The "neutral" items failed to discriminate either within the samples or between the samples.

Form C was employed in the research for which this attitude scale con-

³Four extreme items that met only one of these criteria were retained.

TABLE 4.
INTRA-SAMPLE ITEM VALIDITIES (CORRELATIONS BETWEEN ITEM SCORE AND TOTAL SCORE),
INTER-SAMPLE ITEM VALIDITIES (CRITICAL RATIO OF MEAN DIFFERENCE
IN ITEM SCORE), AND ITEM SCALE VALUES—FORM C,
NEGRO PREJUDICE SCALE

Item No.	Intra-sample validities		Inter-sample validities		Scale values	
	A	C	Mean Difference	CR	Median	Quartile deviation
1	.62	.50	.65	4.89	7.28	.63
2	.59	.59	.45	3.39	7.94	.68
3	-.67	-.55	-1.15	8.02	2.47	.73
4	.68	.51	1.18	7.71	6.95	.54
5	.52	.47	.55	4.36	6.98	.56
6	.51	.53	.76	6.50	7.00	.68
7	-.37	-.36	-.45	2.50	1.17	.35
8	.59	.70	.39	3.29	7.68	.56
9	.54	.57	.30	2.94	7.35	.34
10	.69	.41	1.27	7.76	7.21	.63
11	.62	.69	.35	3.04	7.32	.68
12	.54	.40	.34	2.88	8.98	.26
13	.51	.54	.43	3.61	7.42	.62
14	.55	.59	.37	3.04	7.89	.64
15	.65	.69	.67	5.25	7.14	.62
16	.65	.30	1.07	7.36	7.39	.68
17	.57	.52	.83	5.94	7.03	.55
18	.73	.72	.45	3.36	8.22	.62
19	.63	.49	.77	5.51	7.38	.56
20	.60	.52	.77	4.81	7.26	.56
21	.61	.55	.57	4.48	8.17	.61
22	.66	.64	.83	5.58	7.58	.70
23	.58	.40	1.22	7.73	7.88	.66
24	.55	.57	.56	4.05	7.15	.56
25	.53	.53	.22	2.67	8.78	.44
26	.64	.56	.78	5.85	7.35	.72
27	.58	.47	.66	5.15	6.22	.58
28	.60	.49	.94	6.09	7.18	.62
29	.59	.45	.55	3.98	6.47	.86
30	.68	.36	1.40	9.67	7.41	.73
31	.52	.45	.56	4.50	6.58	.56
32	.55	.59	.24	1.79	8.86	.32
33	.63	.38	.99	6.87	8.32	.54
34	.50	.47	.26	2.40	8.03	.54
35	.71	.81	.49	3.46	7.97	.64
36	.72	.49	.54	3.85	8.11	.56
37	-.59	-.50	-1.01	6.90	1.60	.60
38	-.53	-.41	-.39	2.75	2.95	.65

struction had been undertaken. However, two further analyses were made. In the first, two parallel forms were developed, from the same item pool (of 120 items) from which Form C had been drawn. These Forms (D-A and D-B) were selected on the same basis as Form C (satisfactory intra- and inter-sample validities), and, in addition, they were matched for item scale values

by item *topic*. Each *D* form includes 31 items, distributed as follows: Education (5), size of Negro population (2), discrimination in public places (1), health (2), employment (2), crime (2), relations to law (1), behavior as soldiers (3), economic condition (2), voting rights (2), housing (3), personal contacts with (3), social control of Negroes (3).

E. RELIABILITY OF FORM C

In the main experiment (1), Form *C* was administered to 680 students on three occasions, separated at intervals of about three weeks. The test occasions were designated Pretest, Immediate Test, Delayed Test. For the purposes of this analysis, the subjects may be divided into four groups, as follows:

Control Group I ($N = 82$): took Form *C* (and other tests) on the three occasions. No other treatment.

Control Group II ($N = 76$): as above, but on the second occasion, immediately prior to taking the test, members of this group saw a short (6-minute) film that presented, in graphs, certain facts concerning the Negro population, its size, employment, health, etc.

Experimental Group I ($N = 248$): as above (Control Group II), but the film was a long (30 minutes or more), dramatic, non-factual treatment of the problems of the Negro.

Experimental Group II ($N = 274$): as above (Experimental Group I), but the film also included the factual material, at the beginning, at the end, or interpolated throughout, that had been shown to Control Group II.

The data for Control Group I is directly relevant to consideration of the reliability of Form *C*, since no treatment effects were present to contaminate the test-retest situation. However, data on all four groups are presented, because analysis showed that the average effect attributable to the film was near zero.

Table 5 presents the means, standard deviation, and inter-occasion correlations for the four groups. Those correlations, especially for Control Groups I and II, may be regarded as test-retest coefficients. They ranged from .7 (pretest versus delayed test for Control Group I) to .9 (immediate test versus delayed test for Control Group I). An analysis of variance over all the observations indicates that the test occasions probably do not differ significantly with respect to means or variances. Subdivision of the data into the four groups showed that this obtained within each group except Experimental Group I. In the latter group, all the variability is attributable to

TABLE 5
MEANS, STANDARD DEVIATIONS, AND FOUR INTERCORRELATIONS FOR FOUR INDEPENDENT GROUPS, THREE ADMINISTRATIONS OF FORM C

	Control Group I (N = 82)			Control Group II (N = 76)			Experimental Group I (N = 248)			Experimental Group II (N = 274)		
	Pretest	Imme- diate test	Delayed test	Pretest	Imme- diate test	Delayed test	Pretest	Imme- diate test	Delayed test	Pretest	Imme- diate test	Delayed test
Mean	38.6	37.9	37.9	34.1	35.6	35.9	36.0	34.1	36.6	34.2	34.3	34.5
SD	24.5	23.4	23.7	21.9	22.9	25.5	21.4	21.6	23.7	20.8	22.8	23.9
Correlations												
Pre	—			—			—			—		
Immediate	.75	—		.80	—		.88	—		.88	—	
Delayed	.70	.91	—	.88	.79	—	.80	.87	—	.85	.91	—

TABLE 6
ANALYSIS OF VARIANCE, INTER-FORM AND INTER-GROUP VARIABILITY

Source of variation	df	Sum of squares	Mean square
Independent observations			
Between Samples	3	2574.8	918.3 n.s.
Between Individuals	676	935765.1	1384.3
Total Individuals	679	938339.9	
Correlated observations			
Between test occasions	2	339.9	169.9 n.s.
Occasions X Forms	6	604.4	100.7 n.s.
Residual within individuals (error)	1352	107092.4	79.2
Total within individuals	1360	108036.7	
Total	2039	1046376.6	
Breakdown: Inter-Form Variability by Groups			
Control Group I			
Between occasions	2	29.8	14.9 n.s.
Residual within individuals	162	20080.9	124.0
Control Group II			
Between occasions	2	127.3	63.6 n.s.
Residual within individuals	150	14162.7	94.4
Experimental Group I			
Between occasions	2	778.5	389.2*
Residual within individuals	494	37809.6	76.5
Experimental Group II			
Between occasions	2	8.8	4.4
Residual within individuals	546	35039.2	64.2

*Significant at 1 per cent level of confidence.

one subgroup (out of the three making it up). It seems likely, then, that Form C has satisfactory reliability for the measurement of attitude changes.

F. SCALE ANALYSIS

From the sample of pretest papers in the main experiment, two random sub-samples of 100 cases each were selected, for development of a uni-dimensional scale.

A scale analysis was carried out on one sample for the 38 items in Form C, using the Cornell technique (6). Cutting points were established so as to trichotomize each item. The coefficient of reproducibility was 74.2 per cent, considerably below the accepted criterion of 85 to 90 per cent.

As a second approximation, all items with a large amount of error were eliminated, as well as all but one item in any topical area. This resulted in a scale of nine items, which were dichotomized.

For this scale, a coefficient of reproducibility of 88.4 per cent was obtained on the original subsample of 100 cases. When this scoring key was applied

to the second sample of 100 cases, a coefficient of reproducibility of 86.6 per cent was obtained. The range of model response categories was from .32 to .69, with a mean of .507 for the original subsample. For the validation subsample, the range of marginals was from .35 to .71, with a mean of .520. These means are in each case the lower limits of the coefficient of reproducibility. The two observed values are sufficiently high (88.8 per cent and 86.6 per cent) to constitute evidence that a single dominant variable is involved in the set of items. The fact that the coefficient of reproducibility for the second (independent) sample, using the key developed on the first sample, is almost as high as that for the original sample indicates that the procedure followed in the first sample of eliminating items with large amounts of error *did not* simply exploit chance error.

It may be concluded that this set of nine items divides these samples into 10 ordered categories (scores 9 through 0) in such a way that an individual with a given *total* score gives a response to each item *more prejudiced* (anti-Negro) *than or at least as prejudiced as* the response to each item made by any individual with a lower score, and that everyone with the same total score gives the same item responses. If the item responses of a set of individuals are deduced from their rank order, the coefficient reproducibility tells us that no more than about 12-13 per cent of the inferred item responses will be in error.

Finally, since the coefficients of reproducibility obtained in this analysis were based, not upon the actual responses given but a manipulation of those responses, one further step was taken. The items were set up in two check lists, in the Thurstone form. One check list (Admission of Bias Form) required that the subject check those items *with which he agreed*. In responding to this list, the respondent was forced to indicate in a positive fashion agreement with anti-Negro statements. The other check list (Denial of Bias Form) required that the subject check those statements *with which he disagreed*. This form seemed to permit eliciting of somewhat more biased (anti-Negro) attitudes, since the respondent was allowed to show bias, principally by indirection (omission).

Two questions were posed. First, if the results of a scale analysis are applied to establish the final item presentation form, what happens to the coefficient of reproducibility? Second, what is the extent of response bias, as reflected in the difference between mean scores on the two forms?

The forms were distributed, intermixed, to 181 introductory psychology students. The Admission of Bias Form was completed by 89 students; the Denial of Bias Form by 92 students.

The A-o-B Form was scored $+1$ for each item checked; 0 for each item unchecked. The D-o-B form was scored $+1$ for each item that was *not* checked.

The papers were arranged in order of score for each form, and errors were counted using the scale key previously devised.

The coefficient of reproducibility shrank appreciably. For the A-o-B Form it became .77, for the D-o-B Form it became .79.

The effect of response bias was clearly elicited. Both the mean score and variability of scores were lower on the Admission-of-Bias Form.⁴ Since a high score means more bias, this finding suggests that students are more likely to give tacit acceptance to prejudicial statements than they are to claim such statements as their own.

The shrinkage in the coefficient of reproducibility is readily understandable. The checklist forced upon the items a dichotomy that was different from, and probably more unstable than, the dichotomy of the five-point scale permitted in the original test. For example, the item "On the whole, Negroes should work at laboring jobs" was dichotomized between 0 (strongly disagree) and 1 through 4 (disagree through strongly agree, inclusive). The checklist permitted only "disagree" or "agree." The checklist dichotomy threw into the "unbiased" category many who would have otherwise been put in the "biased" category. An attempt is being made to structure the checklist items so that the presented dichotomy will more closely approach the dichotomy used in the scale analysis. Thus far, however, no simple method of achieving this end has been devised.

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⁴Mean score, A-o-B Form, 2.06, *SD*, 1.91; mean score, D-o-B Form 2.89; *SD*, 2.79. Ratio of difference to standard error of difference, 2.34. Probability level, .02.

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PROBLEMS IN THE^a NON-DIRECTIVE THERAPIST'S REFLECTION OF FEELING*

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A. THE PROBLEM

In non-directive (client-centered) psychotherapy it is necessary to consider the problems in the reflection of feeling technique, particularly in the efforts of the therapist to bring into play those elements that stimulate psychological growth. From the therapeutic view, reflection of feeling is capable of causing the concepts of the self to either develop and organize themselves; or, remain undeveloped and unorganized. The value of true reflections of feeling in the client's perception of the self in relation to his actual desires and the demands of his environment is essential in the non-directive therapist's therapeutic position. In this area misconceptions frequently arise, particularly in evaluating the client's attitudinal responses. To be able to reflect attitudes and feelings; to be able to sense what the client is trying to say; to be able to coördinate and correlate responses for accurate reflection, presents an important stress on the therapist's rôle in all psychotherapies. Often, therapists discuss, analyze, and judge reflections of content and genuine reflection of attitudinal expressions with much ambiguity and indecisiveness. The literature appears very indistinct in its description of the therapist's effect in the reflection process. No one seems to be too certain about the effect on the client of reflecting feelings and attitudes. Undoubtedly, it is agreed by all therapists that we must know what the client is talking about before we are able to comprehend and reflect his meaning. Without the latter understanding therapist participation becomes minimized, almost insignificant, in a more or less vegetative therapeutic milieu. Perhaps this is a major concern why psychotherapy, regardless of the technique used, seemingly falls short with many clients who experience deeper emotional discomforts.

The strength and success of the reflection determines the extent to which a client will continue to delve further into his problem. Accurate and proper reflections are not simple tasks for the therapist as some believe. A skillful,

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sensitive, grasping ability must be an essential makeup of the therapist's ability. Awkwardness in reflection may well cause client reactions that lead to disappointment and disgust. Therapists who fail to reach the feeling aspect and reflect in such a manner as to be a threat to the client may evoke insecurities which tend to block an adequate strengthening of the concept of the self.

In many instances, clients have been unable to continue with more than one or two interviews due to reflections that allude to a concept of an unacceptable, uncomfortable, and misunderstanding atmosphere. The therapist should realize that by adding the slightest connotation of the direction in which he thinks the client should proceed may disrupt the genuine progress which is possible. There must be a cognizance of feeling and an effort to put into words that are understandable, the feelings of the client as the client feels them. Relatively few therapists or counselors are as yet thoroughly expert in the skillful use of these reflective techniques, and find themselves groping or responding to peripheral or intellectual content rather than feeling content. It may be that a more thorough understanding of the underlying theory on which the non-directive technique is based becomes necessary. Rogerians have provided ample references on the fundamental principles which should be consulted periodically, even for the more experienced non-directive therapist.

A reflection of feeling in terms of a philosophy of life or the therapist's predilections removes the client's focus from himself to a world of rationalization. This lack of adequate therapeutic reflection tends to leave an atmosphere of genuine non-acceptance and uncomfortableness. Due to these peripheral or philosophical reflections the actual understanding on the part of the therapist becomes superficial and warmth does not appear. A groping elaboration of the reflection does seem adequate but tends to cause a dissatisfied attitude on the part of the client which may lead to discontinuing the therapeutic relationship with a loss of confidence in the professional status of the therapist. It seems important at all times to recognize inner elements of attitudes but it is not always necessary to reflect them; moreover, it is not important to reflect all attitudes expressed by the client. On the other hand, it does seem to indicate that through a conflicting, confused maze of attitudes there is an underlying attitude which, if adequately evaluated and understood by the therapist, may provide the important clue which enables the client to grow and progress therapeutically.

Reflections, if accomplished properly, should help the client clarify the self-concept, and enhance the development of stronger concepts that are

elastic and sound enough to make satisfactory adjustments. Similarly, in the basic hypothesis, as stated by Rogers (12), the client should acquire "an understanding of himself to a degree which enables him to take positive steps in the light of his own directions." Various investigators and therapists have proffered no clear-cut criteria in evaluating a proper reflection of feeling. This seems to be left entirely to the ingenuity of the particular therapist. No other evaluative method seems probable at this point when feelings and attitudes are so subjective that specific research objectivity is difficult to apply with reliability. Several researchers have made attempts to use experimental approaches in studies of feeling and attitude, however, an important factor that needs to be considered is that the individual and his emotional makeup are not static enough to apply rigid controls. The same client responses, and the same therapist reflections do not remain the same from day to day.

B. THE MEANING OF REFLECTION OF FEELING

Porter (11) has explained the reflection as "A response in which the attempt at understanding is implemented by a rephrasing in fresh words the gist of the client's expression without changing either the meaning or feeling tone." The non-directive staff at the University of Chicago refers to "reflection of feeling" as an "expression in fresh words, the essential attitudes (not content), expressed by the client; to mirror his attitudes for his own better understanding, and to show that he is understood by the counselor."¹ Hunt (8, p. 74) states that the reflection of feeling appears to be a "potent elicitor of emotional responses which are clarified as to their syntax and meaning by the successive approximations of both patient and the therapist."

It becomes necessary to have general agreements among therapists as to what is and what is not good reflection of feeling, and then look forward to a dissolution of ambiguity as we accumulate experience and become more confident of the therapeutic process. Reflections appear as values. They are the meanings of the words as expressed by the client to the therapist. These meanings determine the therapist's reflection of feeling technique to operate. The emotional tone and the behavioral evidence may suggest to the therapist a mode of reflection that is a recognition and acceptance of the meaning expressed by the client. An important statement by Lecky (10, p. 99) is of major significance: "If a value is assimilated into the or-

¹Mimeographed material to the writer during non-directive therapy training, University of Chicago.

ganization or expelled from it, the process is not one of addition or subtraction, but rather of general revision and reorganization."

The meaning of any client act or statement inevitably is determined in the reflection to it by the therapist. Heider and Simmel (6) have stated that "The meaning we give to what a person says or does derives in part from the permanent character which the person has in our minds." Consequently, the therapist finds himself as an instrument, sensing with intuitive feeling, anticipating, evaluating, and organizing material, focused to the therapeutic effort. The lack of a theoretical framework for the understanding and use of reflection is important. An understanding on the therapist's part that the reflection of feeling is a stimulus to an emotional experience has significant implications for therapy. Effective therapy must be an emotional experience rather than an intellectual one, and the therapist is face to face with a serious task to facilitate client expressions of feeling. As the therapist begins to perceive, to sense through increased experience, he is able to utilize reflection to its utmost. Even the simple "Uh-huh" and the "Um-hmm" are feeling reflections of therapist interest, acceptance, and understanding.

Another difficulty encountered by many therapists is the distinction between reflection, clarification, and summarization of feeling. This problem arises in the method of reflection and the therapist finds it necessary within his own thinking to interpret the feeling expressed by the client.

C. REFLECTION OF FEELING AND INTERPRETATION

Those therapists who have been interested in the theoretical aspects of non-directive psychotherapy have discovered that the subjectivity and variability of therapist reflection is basic to the non-directive approach. In fact, this is apparent in all therapies, and in this respect non-directive dynamics are in agreement with other therapeutic approaches.

An important principal distinction between the non-directive reflection of feeling technique and the analytical interpretive technique is that in the former the intention is to bring forth in the therapeutic relationship the development and integration of the individual into a more consistent personality during the therapeutic process, and not a direct interpretation or analysis of problems stemming from a probing into past history. However, the non-directive therapists frequently feel that the reflection of feeling^o oftentimes simulates a probing into past experiences, even though the process, as proclaimed, is seen only as an immediate experience in terms of the present. At this equivocal point there is a need to explain the problem of interpretation and what is meant by reflection for non-directive therapy and reflection

for other therapies. It is debatable to say that interpretation does not occur in non-directive therapy. Interpretation seems to find its way into the maze of reflection of feeling activity. According to Estes (5): "Summary statements bringing together items separated too widely in time in the report of the client for him to relate them is . . . interpretation used by Rogers and others." From the writer's experience with several hundred therapeutic cases handled in the most disciplined non-directive method, the problem of interpretation appears to be one of semantics. In the therapist's thinking during therapy it is doubtful that an interpretation process does not take place in the evaluation of the client's feelings and attitudes. It may be true that imparting such interpretation is held at a minimum, but it is difficult to state that an interpretation is not occurring in the reflection of feeling. Beier (1) has stated that the therapist attempts to "react" to the client's feelings that have either been expressed directly or have been observed during contact with the client. The question then arises here as to how does the therapist reflect or "react," as Beier states, to the observed feelings without some interpretation of the "observed" feelings. Considering this dilemma the reflection of feeling can lose its non-directive emphasis and serve to foster more variations in the therapy. Too, this appears as a violation of the basic hypothesis that "The individual can give adequate direction to his efforts to achieve self-organization without external direction (by another)" (9).

In a study by the writer relating to this particular problem, three judges evaluated recorded interviews obtained in 35 of the writer's cases and agreed in 85 per cent of the evaluations that certain reflections of feeling did and could have conveyed interpretive meaning to the client. The same judges also studied the nature of these reflections and reported 87 per cent adherence to the non-directive method.

Collier (2) has stated: "The therapist must choose which of the many client's statements he should single out for reflection and with what intensity he should reflect them." By virtue of this selection process, in order to find the proper feeling and attitude to reflect from several client responses, an interpretation process becomes obvious. Also, when the therapist is attempting to determine "intensity" evaluation, interpretation, and judgment enter the therapeutic process. Snyder (13, 14) states that the therapist or counselor "must decide at the end of a client's statement which element he wishes to respond to. . . ."

The action by the therapist to clarify feeling seems to frequently reflect interpretation which may or may not aid in the client's development of the concept of the self. The non-directive adherents have often contrasted

interpretation with reflection of feeling, but have seemingly avoided the inference that in the reflection of feeling interpretation does occur significantly in one degree or another. This is shown by many clients who leave the non-directive therapeutic session with feelings that the therapist provided an overt, direct solution or explanation for certain feelings and attitudes.

If the client is attempting to put a deep-seated emotional attitude into words, it may be a difficult and uncomfortable process. He may have a feeling attached to his attitude that may cause hesitation and reluctance, due to guilt or embarrassment. Whatever the motivation, this course of emotion will be severed beyond recovery if the therapist is unable to reflect properly the attitude, or if he turns away from the underlying feeling because he fears that he might be reflecting in an interpretive manner. The whole problem of interpretation, particularly in the therapist's reflection of feeling, seems to continually appear in reflections by the mere reflection itself.

Curran (4, p. 27) has made the statement that "There are no random counselor responses in this kind of counseling." In other words, reflections of feeling must be cautiously studied to reflect the feeling the client has expressed. One of the fundamental and very important objectives of the therapist is recognition of feeling and the reflection of such feeling whether or not it involves interpretive evidence. The therapist certainly cannot always maneuver his thinking into such complexities during the therapeutic process as to screen out all possible interpretations that may seem evident in the reflection. Non-directive therapists have made conscientious efforts to avoid interpretation, and rightly so, but due to these efforts they seemingly have tended toward a failure in refinement of reflection techniques. These techniques of reflection need to be studied diligently so that the therapist can become extremely sensitive in his reflecting ability. If the therapist's reflection falls short to the true feelings, or if it is narrow in his grasping of feelings, he is most likely to lose the comfortableness that is necessary in the therapeutic relationship. Many therapists hesitate to reflect any feeling which has not been made obvious. It seems that they are missing very prolific opportunities to offer real, deep understanding. The reflection process is the therapist's most sincere attempt to clarify feelings and attitudes which are not completely clear to the client. The therapist frequently finds it necessary to respond to a specific item in a client's statement, but at times he may feel he should respond to the general feeling of the entire statement. This clarification of feeling seems to act as the emotional stimulant to move ahead in the therapeutic relationship.

D. REFLECTION OF FEELING AND TRANSFERENCE

The manner of reflection may determine whether or not a transference relationship will occur. In psychotherapy the transference relationship is generally defined as the establishment of emotional attitudes, affectionate (positive transference) and hostile (negative transference) that have been derived from experiences or relations in the past, mainly with one or both of the parents. Although many non-directive therapists claim that the phenomenon of transference does not occur, this, too, is questionable, especially in cases continuing with the non-directive relationship for a lengthy period of time. The understanding, acceptance, and permissiveness in the therapeutic relationship alone seems to provide for transference. In 25 cases handled by the writer for a period of one to two years, involving five to 125 interviews per case, transference elements were recognized and confirmed by four evaluators reviewing the recorded interviews. Transference occurred manifestly even though there was strict adherence to non-directive principles. Some of the reflected material tended to encourage the transference element in several clients who were unable to recognize the reflections of feeling as their own expressions and experiences.

E. THE PROBLEM OF WORDS, GESTURES, AND VOCAL VARIATIONS

The reflection of feeling technique attempts to provide a genuine living situation, in that there are two persons who interact and communicate with one another. As Combs (3) has stated: "The threat to organization lies not only in the actions or words of the therapist but in the peculiar meanings of these behaviors to the client." Proper words and word symbols are necessary in the reflection of feeling. There is a serious danger in using vocabulary levels far above or below the intellectual reach of the client. Therapists who are prone to use extreme vocabularies may find difficulty in adequately reflecting meanings to the client in words that are within the client's ability to understand. There is a strong feeling among all therapists that language misunderstanding may be responsible for many unsuccessful therapeutic relationships. If there is confusion in the words making up the therapist's reflection to the client, incomplete understanding and disagreement becomes certain. If the ideas and words are beyond the range of the client, he will fail to mature or grow therapeutically. The therapist needs to exercise judgment as to the level of verbal ability and understanding the client possesses.

There also enters into the therapist's reflection such important factors

as gestures and vocal variations. When listening to recorded interviews there are many occasions whereby therapists give certain vocal cues. It is possible that the therapist may know this occurs, and make every effort to avoid them, but, this has led to additional complexities for the therapist. Gestures and vocal variations have always presented difficulties and enter significantly into the reflection of feeling technique. Although the therapist is careful of what he reflects, there is a communication of undesired impressions and unintentional gestures. As Horney (7, p. 297) has stated: "The patient senses the analyst's real attitude without its being explicitly stated."

The influence of such cues cannot be taken as unimportant in the dynamics of non-directive reflection of feeling. They are very essential and certainly influential in the meanings returned to the client. It becomes almost an impossibility to avoid the many cues that enter the therapeutic environment. Therefore, we can only attempt to understand that these factors do exist in the therapist's manner, and alleviate them from the therapeutic relationship whenever possible. Perhaps in the therapist's own personality analysis and insights some cues can be carefully avoided, but, this also tends to place limitations and restraints on his freedom and naturalness which are essential. An answer to this problem can only come from the therapist's evaluation of himself and the freedom he has from personality and emotional conflicts.

It is true that many therapists unknowingly reflect more in these cues than in the actual reflection of feeling expressed by the client. Extreme passivity and the non-directive *pause* certainly carry meaning to the client that can cause uncomfortableness or helplessness on the part of the client, even to the point of discontinuing the therapeutic relationship.

F. SUMMARY

The writer has stated some significant problems that enter the non-directive therapeutic relationship which affect the client in one way or another. These problems are reflected by the therapist and are either accepted or rejected by the client. In the non-directive method the reflection of feeling is a genuine attempt to cause the individual to resolve the problematic situation according to his own criteria. A poor reflection of feeling from the therapist may result in the client's loss of contact with the therapeutic environment due to disturbances within the self. Such a situation might well lead to further disturbances in the formation of the concepts of the self. By improper reflection of these concepts, or by variations, the therapist is in a position to cause a more personal unbalance. Many interpretations can be applied, however, the writer primarily has strived to emphasize the place of

the therapist in the reflection of feeling technique; also, to make aware the value of meaningful reflections by the therapist to afford the client a more clear-cut picture of himself in relation to individual desires and the demands of environment.

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RATIONALIZATIONS ABOUT TEST PERFORMANCE AS A FUNCTION OF SELF-CONCEPTS*

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A. INTRODUCTION

Recent theoretical formulations, research, and experience in counseling have given rise to a number of questions which affect the use of aptitude, achievement, interest, and personality tests with entering college freshmen. There has been the assumption by many that college freshmen do not have realistic concepts of themselves and that all that is necessary is to test them, tell them, and they know. Counselors and advisers who have worked closely with students, however, realize that it is not such a simple process. A not uncommon experience is to discuss a freshman's test performance with him only to have him discredit the results altogether through some process of rationalization.

This is not difficult to understand when one recognizes what a threatening experience such an external evaluation is to the freshman's concept of himself. Carl Rogers has pointed out that "it is difficult to conceive of situations . . . in which a person who feels that he is being evaluated against someone else's standards does not feel threatened" (6, p. 374). He maintains that "evaluation, either positive or negative, can be such a threat to an individual that he reacts with hostility . . . by attacking the source of the threat." Porter, too, has emphasized the importance of considering the individual's internal frame of reference (5, p. 61). According to him, one is forced to deal with the reality the counselee holds no matter how much insight as counselor he may have into the errors of perception the counselee makes. It is toward a re-evaluation of these perceptions which is more complete, more nearly correct, and less denying that counseling attempts to help the student.

B. PROCEDURE AND BACKGROUND DATA

An attempt was made to study the problem just described by having Kansas State College freshmen (September, 1949) give self-estimates of how they thought they would stand in relation to their classmates on tests of scholastic ability and achievement (American Council on Education Psychological Ex-

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amination, Coöperative English^o Achievement, and Coöperative Reading Achievement). Self-estimates were given both before and after the administration of the tests. General scholastic ability, number ability, verbal ability, English usage, spelling, vocabulary, reading speed, and reading comprehension were evaluated. On both occasions, an opportunity was given to "rationalize" performances by listing any factors which might have caused them to perform poorly on the tests, factors which they felt affected them but not their fellow students. It is with this aspect of the larger study that this paper will deal.

Discrepancies between self-estimates and actual standings on the tests were computed. No discrepancy was considered unless it was as large as 25 percentile points. There was little relationship between self-estimates and achieved standings. For example, over 65 per cent of the total group placed themselves in the upper fourth in scholastic ability and 95 per cent placed themselves in the upper half. Among those who actually achieved in the bottom fourth, 62 per cent estimated that they would stand in the upper fourth and 92 per cent placed themselves in the upper half. When given an opportunity to re-evaluate themselves, there was a general revision downward in the direction of more realistic self-evaluation. Women evaluated themselves more accurately than men, but also under-evaluated themselves more frequently.

Only the rationalizations used at the time of the re-evaluation are used. These were classified into 14 categories as follows: lack of sleep; headaches; nervous, scared, etc.; out of school one or more years; "bad cold"; hay fever, asthma complaints; home sickness; eye complaints; stomach complaints; ear and hearing complaints; other physical complaints; anxiety about Fraternity Rush Week; distractions from opposite sex; apparently irrelevant verbalizations (such as: "I lost my razor and couldn't shave; lack of interest; new environment; etc.").

Approximately one-fourth of the 1,215 freshmen participating offered some "rationalization."

Five categories of self-evaluation were used. "Accurate evaluation" was defined arbitrarily as including those whose total deviations were less than 75 percentile points or three-quarters; "some over- and under-evaluation" three to eight quarters and "definite over and under-evaluation" nine or more quarters or an average of more than one-quarter.

C. RESULTS AND INTERPRETATION

First, the total group was studied to ascertain if rationalizing one's performance is related to accuracy of evaluation.

It was found that women who rationalize their performance "definitely over-evaluate" themselves more frequently than women in general (statistically significant at the .02 level of confidence for initial evaluation and at the .1 level of confidence for the re-evaluation). They also show less "accurate evaluation" on the re-evaluation (significant at the .05 level of confidence). A similar tendency is found for men but the differences are not statistically significant.

The data become more meaningful, however, when the relationship to specific rationalizations are examined. Eight categories for men were considered large enough for statistical treatment.

Consistent and persistent over-evaluation is found to characterize those who offer nervousness and headaches as rationalizations. Ninety per cent of those giving headaches and 75 per cent of those giving nervousness over-evaluate themselves.

The frequency of under-evaluation in both these categories, is significantly less than for the total population (significant at the .001 level of confidence). There is also significantly less accurate evaluation for those complaining of headaches (significant at less than the .05 level on re-evaluation).

Other groups yield no statistically significant differences, but several trends seem to be worth pointing out. The homesick group originally evaluated themselves rather accurately but lost considerably in accuracy when they were called upon to re-evaluate themselves. Those offering participation in Fraternity Rush Week as a reason for not doing as well as they could present an interesting picture. Throughout, there is a consistent but slight tendency in the direction of better self-evaluation. This is especially true in the re-evaluation; the definite over-evaluators drop from 28 per cent to 8 per cent as compared with 33.2 per cent and 17.4 per cent for the total male group. The percentage of accurate evaluators rises to 48.0 per cent. There are no extreme under-evaluators. These young men tend to be rather realistic as a group to begin with and the experience seems to enable them to evaluate themselves even more accurately.

Those who give apparently meaningless verbalizations also demonstrate interesting evaluative phenomena. Initially they tend to a high degree of over-evaluation (83.4 per cent) and a low degree of accurate evaluation (12.5 per cent); in re-evaluating themselves, however, they revise their estimates

in the direction of higher degree of accuracy. Those who have been out of school one or more than one year and those who mention physical complaints such as eyes, ears, asthma, etc., tend toward more accurate evaluation, less over-evaluation, and more under-evaluation.

When 50 each of the most extreme over-, under- and good evaluators were studied more intensively, inability to sleep was found most frequently among the under-evaluators. Using the total group of 54 who complained of loss of sleep, an attempt was made to separate those who lost sleep because of some kind of anxiety from those who were unable to sleep because they were traveling. Although this differentiation could not be accurately made in all cases, the evidence seems to indicate that those who lost sleep because of nervous anxiety under-evaluate themselves while there are no differences for those who lost sleep because of traveling. This tendency might possibly be related to the compulsiveness of these under-evaluating individuals. They tend to doubt everything and to prepare for action instead of to act.

Although the limits of this paper do not permit a review of the evidence from case studies which were made of small samples of over-, under-, and good evaluators, an attempt will be made to point out some of the salient data.

First, it must be remembered that all kinds of level of aspiration situations constitute a threat to a person's ability and integrity and bring into play mechanisms to protect the self (2). Setting a goal may serve as a technique to protect the individual from experiencing failure. Threats to the self have a restrictive effect upon the field of expression which vividly describes what apparently takes place. Striking evidence of this is found in the Rorschach records of the subjects for whom detailed case studies were prepared. The average number of popular responses of the good evaluators was 8.6 but for the over-evaluators it was 4.6 and for the under-evaluators it was only 2.8. The good evaluators achieved 94 per cent F+; the over-evaluators, 65 per cent; the under-evaluators, only 58 per cent.

The more detailed study of the over-evaluators shows that college education has become all-important to them. They seem to have enjoyed rather favored family situations insofar as approval is concerned and they manifest an overwhelming desire for approval. They achieve leadership in Sunday School, 4-H Club, Boy Scouts, and class organizations. They are tremendously idealistic, really trying to accomplish much more than they can; they identify with the rôle of the helper. Fenichel (1) feels that social anxiety of this kind "may represent either a part of the child's fear of the parents which was never completely internalized or a reprojection of the super-ego into the

environment." Such people appear particularly polite, accommodating, and considerate as a reaction formation. They long to be loved and cannot endure a state of not being loved. They are disturbed when they see that someone to whom they are totally indifferent is indifferent to them. They do not need affection so much as confirmation, to get people to say, "Yes, you are a good boy." They continually worry over the good opinion of physicians, barbers, store clerks, etc., and cannot bear to destroy the cordiality of any situation. They are bothered by stage fright and fear of examinations. Headaches and nervousness are only natural concomitants of such reactions.

The subjects of this study seem to follow the process described by Charles Morris (3) in deluding themselves. First, they resort to irrationalism. They build a fair picture of themselves and hug this fair image by ignoring, glossing over, and minimizing evidence to the contrary. When confronted with objective evidence they resort to the device of determinism, saying that a man can do anything he wants at any time. One would think that they would finally be backed into a corner, that they would discover that they couldn't do successful college work. Experience in interviewing those who are dismissed for scholastic failure reveals that this is not always true. Those who petition reinstatement continue to rationalize, saying, "I know I can pass if I just study." This last device might be called "sin," the oldest defense and a way of pretending that we are bigger than we are.

D. IMPLICATIONS

The fact that rationalizations serve as a defense, and frequently as a persistent and impenetrable one, raises a number of questions regarding a possible need for improved administrative structure involving a hierarchy of limits in the educational institution as well as implications for such service rôles as vocational guidance and psychotherapy. A few brief cases will illustrate what some of the problems are.

J.G. was graduated from high school in the upper half of his high school class but ranks in the lowest 5 per cent on all of the freshmen tests of ability and achievement. He is an only child and has been quite active in high school and college activities, church activities, etc. Before the end of the seventh week during both of his first two semesters he reduced his load to 12 hours and managed to pass most of his work but earned no grade points. He failed 15 of 16 hours his third semester but still believes that he has a good ability as the average college student and that he could do successful college work if he didn't get nervous on examinations. He says that he thinks a college education is absolutely necessary for success.

M.W. ranks in the lowest one per cent in relation to his classmates on all of his tests of ability and achievement upon admission. During his first semester, he failed 15 of 16 hours but he offered so many convincing rationalizations for his failures that he was reinstated. This performance was duplicated his second semester. He still petitioned reinstatement offering still more rationalizations. He still thinks that his "book learning" abilities are at least as good as the average college student and is certain that he can do successful work if he is only given a chance. He was not reinstated and stayed out of school for a semester, and is now back in school once again undergoing the same frustrating experience.

S.J. ranks in the lowest 5 per cent of all of the freshman tests, but places all of her self-estimates at about the 75th percentile. She failed almost all of her work the first semester, but she recounted a woeful story of the physical ailments which had plagued her and told of her plans to train as a children's nursing aide next year. She was reinstated and a modified program of the most "non-academic" type possible was worked out for her. This time she managed to pass enough of her work to avoid dismissal. Encouraged by this or urged by her parents, she returned for a third semester. Again, she was plagued by physical ailments, failed most of her work, was dismissed, and again reinstated. Her plan this time is to enter a teachers' college next fall to prepare to be an elementary school teacher.

Such cases as these are difficult to help because they recognize no problems and do not seek counseling. In fact, at least two local studies (4, 8) show that students dismissed for scholastic failure recognize significantly fewer problems and make significantly less use of counseling and faculty advising services than do those who succeed. Although there are problems of democratic ethics involved, it would seem that some procedure could be evolved whereby counseling and guidance services could effectively serve the needs of these cases.

E. SUMMARY

Entering college freshmen gave self-estimates of their scholastic ability and achievement before and after taking a battery of tests. On both occasions they were permitted to "rationalize" their performance.

Nervousness and headaches are the most characteristic complaints of over-evaluators. Inability to sleep the night before taking tests was offered most frequently by under-evaluators.

Being asked to give self-estimates constitutes a threat to some individuals and brings into play mechanisms to protect the self. These threatened in-

dividuals are restricted in their field of perception and do not perceive their world realistically. Such individuals are difficult to counsel because they recognize no problem and are ultimately eliminated from college as a result of some hierarchy of administratively imposed limits.

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RESULTS OF TESTING 81 NEGRO RURAL JUVENILES WITH THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN*

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The Wechsler Intelligence Scale for Children, the WISC, has been the subject of several investigations (2, 3, 4, 5), in which white children were used. Only one study (7), however, reports the results of the Scale when employed with Negro children. In it the authors found that the control group, selected for normal subjects, tested as borderline in intelligence, according to Wechsler's classification. The authors conclude that the Wechsler norms, obtained only on white children, are rather inapplicable to a sample of rural southern Negro children.

A. PROBLEM AND PROCEDURE

Inasmuch as the aforementioned control group (7) included only 40 children, it was decided to administer the *WISC* to a larger number of subjects to further evaluate the results with such individuals. Accordingly, this test was given to 81 rural Negro children, 70 of whom attended three rural elementary schools in Muscogee County, in the west central section of Georgia. In these three rural schools all children of ages 10 through 13 years in Grades 4 through 7 were tested. Eleven more children were obtained from a rural elementary school in Oconee County, located in northeast Georgia. The latter 11 cases were chosen alphabetically to complete the needed age, grade, and socio-economic classifications.

The subjects in the present study are classified as rural on the basis of their family residence in a rural area, and because of their attendance upon a school classified as "rural." Sixty of the fathers were tenant farmers or farm laborers, while 21 were employed as unskilled laborers in nearby towns. The paternal occupations of 78 cases fell within Categories X, XII, and XIII of the Census. Wechsler lists these workers as Occupation Group 8 (6). In three instances the classification was "semiskilled," placing the individuals in Wechsler's Occupational Group 7.

The *WISC* was administered by the junior author to each child at the

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school which he attended, in a room assigned for this purpose. The examiner, a resident of the area, was known by many of the children in the Muscogee schools. It was not difficult to establish rapport there or in the Oconee school.

B. RESULTS

The mean Full Scale *IQ* for the 81 children of the present investigation was 67.74. According to Wechsler's standards (6) an *IQ* below 70 is placed in the feeble-minded category. It is doubtful, however, that these children would be regarded as feeble-minded if judged by the usual socio-economic or observational criteria. It is possible that Wechsler's norms, based upon white subjects, are not appropriate for use with a sample of southern rural Negro children. According to the standards of the culture in which these children live, the group probably would be regarded as typical or representative of children aged 10-13 years. Numbers of the children manifested commendable initiative and resourcefulness in their play, for which they lacked the usual equipment found on playgrounds. Many of the subjects were reported as helping in the home and on the farm.

In the present investigation the Verbal *IQ* was higher than the Performance *IQ*, respective records being 73.92 and 67.13 (Table 1). Judged on

TABLE 1
INTELLIGENCE QUOTIENTS FOR EIGHTY-ONE NEGRO CHILDREN OF THE WECHSLER
INTELLIGENCE SCALE FOR CHILDREN

Tests	Mean	Median	SD
Verbal	73.92	74.33	8.25
Performance	67.13	66.86	11.45
Full Scale	67.74	68.15	9.60

the basis of their Verbal *IQ*'s the subjects would be classified as borderline, according to Wechsler's standards.

The superiority of Verbal as compared with Performance *IQ*'s is consistent with the findings of Davidson *et al.* (1). He and his fellow investigators administered the Wechsler-Bellevue Adult Scale to Negro and white adult subjects. Negro subjects had significantly lower scores on the psychomotor tests, an outcome which was attributed to the assumption that Negroes in our society have little or no incentive to do things rapidly.

In the present investigation, there was not enough evidence either to support or refute Davidson's hypothesis.

The older group, aged 12-13 years, proved to be inferior to the younger group, aged 10-11 years (Table 2). Comparisons of the age groups on the

TABLE 2
INTELLIGENCE QUOTIENTS FOR FORTY NEGRO CHILDREN AGE 10-11 YEARS AND FORTY-ONE NEGRO CHILDREN AGE 12-13 YEARS

Tests	10-11 year age group				12-13 year age group				CR	Level of significance
	Mean	Median	σ	σM	Mean	Median	σ	σM		
Verbal	76.63	76.15	7.53	1.19	71.27	72.25	8.01	1.25	3.10	.01
Performance	70.88	71.57	10.52	1.66	63.47	62.54	11.11	1.74	3.11	.01
Full Scale	71.25	71.90	8.65	1.37	64.30	62.75	9.63	1.50	3.42	.01

three scales, Verbal, Performance, and Full Scale, resulted in differences which were significant at the one per cent level.

The Mean Full Scale *IQ*'s for the younger and older groups were 71.25 and 64.30, respectively. The younger group, therefore, falls in the borderline classification and the older group in the mentally defective category, according to Wechsler's standards (6). The classifications were the same for the Performance *IQ*'s. The older subjects did reach the borderline level, however, on the Verbal Scale.

On comparing the sub-test scores of the two age groups the differences were found to be significant at the five per cent level, or higher, in five instances. The subtests in which the differences were the greatest were Comprehension, Similarities, and Picture Arrangement (Table 3). It appears that the older group's ability to utilize past experiences, to generalize, and to comprehend and size up a total situation is significantly inferior to that of the younger subjects.

Reasons for the superior record of the younger group deserve consideration. It is possible that the environment of the younger children was more adequate and relatively more stimulating. For instance, if the adults in most of the homes had only a third or fourth grade education they would be more capable of teaching children of 10-11 years of age than 12-13 years of age. Since most of the fathers were unskilled laborers, it is not likely that they had had much educational opportunity. With such an obvious factor influencing the subjects, it seems unjust to assume that "the older children probably have reached the limits of their ability," as was suggested by one critic.

If further investigations of Negro rural children show that the *IQ* decreases consistently with age, this will be added evidence that relatively poor school and home environments depress the tested intellectual level.

In the previously mentioned study of a similar group (7), intertest comparisons were made within the control group. Only two significant differences were noted: the superior record on the Comprehension test as compared with the Vocabulary test; and on the Digit Span test as compared with the Comprehension test.

In the present investigation, many more significant differences resulted from intertest comparisons. For both groups of subjects these differences were significant at the five per cent level, or higher (Table 4): Arithmetic and Comprehension; Comprehension and Vocabulary; Comprehension and Picture Arrangement; Comprehension and Block Design. For the younger group, Similarities was significantly better than Comprehension, while for the older group Information surpassed Comprehension.

TABLE 3
 SCALED SCORES ON SUB-TESTS FOR FORTY NEGRO CHILDREN AGE 10-11 YEARS AND FORTY-ONE NEGRO CHILDREN AGE 12-13
 YEARS ON THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN

Tests	10-11 year age group				12-13 year age group				CR	Level of significance
	Mean	Median	σ	σM	Mean	Median	σ	σM		
Information	6.73	6.38	2.05	.324	6.17	5.89	1.96	.306	1.22	.50
Comprehension	6.33	6.17	1.41	.223	5.37	5.14	1.49	.233	2.98	.01
Arithmetic	7.78	7.36	2.23	.353	6.66	6.40	1.98	.309	2.39	.02
Similarities	6.95	6.96	1.48	.234	5.95	5.69	1.95	.305	2.61	.01
Vocabulary	3.40	3.37	1.22	.193	3.02	3.11	1.52	.237	1.24	.50
Picture Comp.	5.80	5.60	2.39	.378	4.90	4.44	2.71	.423	1.59	.10
Picture Arrange.	5.03	5.00	2.15	.340	3.49	2.67	2.18	.340	3.20	.01
Block Design	5.18	5.00	2.22	.351	4.27	4.05	2.75	.429	1.64	.10
Obj. Assembly	6.38	6.61	2.22	.351	5.34	5.25	2.71	.423	1.88	.05
Coding	6.53	6.79	2.68	.424	5.76	5.63	2.48	.372	1.37	.10

For both groups the best records were made in Arithmetic, Similarities, Information, and Coding. The poorest records were obtained in Picture Completion, Block Design, Picture Arrangement, and Vocabulary.

TABLE 4
CRITICAL RATIOS BETWEEN COMPREHENSION SUB-TEST AND OTHER SUB-TESTS: RECORDS OF FORTY NEGRO CHILDREN 10-11 YEARS AND FORTY-ONE NEGRO CHILDREN 12-13 YEARS

	10-11 years		12-13 years	
	CR	Level of significance	CR	Level of significance
Compreh. & Inform.	1.02	.50	2.02	.05
Compreh. & Arith.	3.47	.01	3.31	.01
Compreh. & Simil.	1.92	.05	1.51	.10
Compreh. & Vocab.	9.93	.01	7.07	.01
Compreh. & P. Comp.	1.21	.50	.97	
Compreh. & P. Arrang.	3.19	.01	4.56	.01
Compreh. & Block D.	2.74	.01	2.05	.05
Compreh. & Object A.	.10	—	.06	—
Compreh. & Coding	.42	—	.86	—

The results of the previous study (7) of Negro rural children were compared with the data of the present study, and the groups were found to differ markedly in Verbal *IQ*'s, which were 79.00 and 73.92, respectively. The difference is significant at the five per cent level. In the two investigations, the Performance and Full Scale *IQ*'s do not differ significantly.

An analysis of the subtests of the Verbal Scale was made and the results are given in Table 5. It will be observed that the children of the present study surpass the previous groups on the Arithmetic test, and the difference is significant at the one per cent level. The Muscogee County schools place special emphasis upon arithmetic and this fact may account for the results noted.

C. SUMMARY

The Wechsler Intelligence Scale for Children (6) was given to 81 southern, rural Negro Children. From an analysis of the data, the following conclusions seem justified:

According to Wechsler's standards, the mean Full Scale *IQ* of 67.74 places the group in the feeble-minded classification. These findings are similar to those obtained in a previous study of 40 southern rural Negro children in a different county.

It appears that Wechsler's norms based on white children, are probably inapplicable to such a sample as that of the present study.

The younger subjects were significantly superior to the older group on the basis of Verbal, Performance, and Full Scale *IQ*'s. It seems reasonable to

TABLE 5
COMPARISON OF THE VERBAL SCALED SCORES OF A GROUP OF EIGHTY-ONE NEGRO CHILDREN AND A GROUP OF
FORTY NEGRO CHILDREN (7)

Tests	Eighty-one subjects				Forty subjects				CR	Level of significance
	Mean	Median	σ	σM	Mean	Median	σ	σM		
Information	6.41	6.06	1.99	.221	7.05	6.21	3.30	.522	1.12	.50
Comprehension	5.88	5.74	1.57	.174	5.87	6.00	2.81	.444	.02	—
Arithmetic	7.21	7.00	2.14	.238	5.95	5.50	2.79	.441	2.51	.01
Similarities	6.44	6.47	1.50	.167	6.48	6.25	2.71	.428	.09	—
Vocabulary	3.21	3.27	1.39	.154	3.95	4.21	2.38	.376	1.82	.10

assume that the home environment of the older children was relatively less educational than was that of the younger cases.

The older age group was found to be significantly inferior to the younger age group in Comprehension, Arithmetic, Similarities, Picture Arrangement, and Object Assembly.

For both groups the best records were in Arithmetic, Similarities, and Information, and the worst were in Block Design, Picture Arrangement, and Vocabulary.

The Verbal *IQ* was higher than the Performance *IQ* for both groups.

In a comparison with a previous study of the *WISC* with Negro rural children, it was found that the subjects in the present investigation were significantly better on the Arithmetic test, due perhaps to greater school emphasis on this subject.

We must question whether the *WISC* is a suitable test for the southern rural Negro child. It appears that a test appropriate for these children will need to contain more material from their specific type of environment and from their experiential background.

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AREAS OF VALUE DIFFERENCE: I. A METHOD FOR INVESTIGATION*

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A. INTRODUCTION

In much of the study of inter-group relations, particularly that conducted through the use of attitude scales, prejudice has been treated as a simple, unidimensional phenomenon. Attitudes towards a generalized group have been measured along a single axis with extremes from hostility to friendliness. Such an approach conceals inconsistencies in attitude such as appeared in cases cited by Adorno *et al.* (1) where a group was considered both clannish and forward, aggressive and seclusive. Clearly, the name of a group does not magically constitute an identical stimulus to each respondent. Rather, in the case of the Negro, it evokes a mental picture of a particular type of Negro which reflects both a personal expectation of what a Negro is like (stereotype) and a pattern of valuations of what he should be like (approved rôle). Much of intergroup tension results from deviations between actual rôle behavior and approved rôle behavior, and not from a simple monistic attitude of friendliness or hostility.

The patterns of expectancy within and between groups have been studied extensively under the rubric of stereotypes. This study represents an attempt to devise a technique for ascertaining patterns of valuations of behavior and to reveal conflicts in these patterns between and within groups.

B. PROCEDURE

A list of adjectives was compiled akin to those used in the Katz-Braly stereotype experiments (2) but revised considerably in terms of item difficulty and clarity (Table 1). The experimenter could type into the directions the name and sex of whichever group he desired evaluated. The subjects were instructed orally to respond in terms of the first impression that came to mind.

*The subjects used were 490 female white undergraduate students at the University of Oklahoma. Two hundred forty were presented with the form to evaluate the behavior of "a Negro" while 250 received the form to evaluate the behavior of "a person." In the latter case, it is assumed that

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TABLE 1

Directions: If you heard _____ referred to in terms of each of the following adjectives, would it be complimentary or uncomplimentary to _____? Indicate your answer by inserting a number to the left of each adjective according to the following scale:

if very complimentary mark a	+2
complimentary mark	+1
indeterminate mark	0
uncomplimentary mark	-1
very uncomplimentary mark	-2

_____ sociable	_____ shrewd	_____ happy-go-lucky
_____ gentle	_____ well-liked	_____ athletic
_____ enthusiastic	_____ independent	_____ witty
_____ proud	_____ ambitious	_____ progressive
_____ passionate	_____ neat	_____ elegant
_____ loyal	_____ modern	_____ nationalistic
_____ submissive	_____ liberal	_____ respectable
_____ talkative	_____ thrifty	_____ musical
_____ eager	_____ obedient	_____ quick-tempered
_____ carefree	_____ quiet	_____ cautious
_____ kind	_____ neighborly	_____ clever
_____ practical	_____ careful	_____ quick
_____ religious	_____ jealous	_____ loud
_____ critical	_____ bitter	_____ childish
_____ strict	_____ graceful	_____ patient
_____ serious	_____ calm	_____ dependent
_____ unsympathetic	_____ meek	_____ sensitive
_____ helpful	_____ stubborn	_____ traditional
_____ shy	_____ aggressive	_____ good-natured
_____ slow	_____ conservative	_____ persistent
_____ jovial	_____ modest	_____ dominant
_____ trusting	_____ forward	_____ original
_____ faithful	_____ timid	_____ sympathetic

the subjects are responding in terms of a white person. A scale was attached to the back of each list on which the subject would indicate her attitude towards the Negro. This scale contained five statements and the subject was instructed to place an X next to the one that most closely approximated her opinions on the topic.¹ These statements were:

1. Negroes should be treated as equals in all situations.
2. Negroes should be treated as equals in most situations.

¹The experiments were conducted during dormitory house-meetings where the attendance of the subjects was assured but the time allowed the experimenters was necessarily limited. This consideration was of prime importance in the choice of an attitude scale to be used. The scale had to be one that required very little time to fill out. Since only a rough screening was needed, it was felt that a scale of this sort would suffice in sorting out most of the prejudiced from the unprejudiced subjects. We may say, concerning the scale, that although we cannot assume that all the subjects who checked the top statement are unprejudiced, we may be quite certain that subjects who checked any of the other statements are prejudiced to some extent. In this case, the actual degree of prejudice above a certain point would play little part in evaluation of the results.

3. Negroes should be treated as equals in some situations.
4. Negroes should be treated as equals in very few situations.
5. Negroes should be treated as equals in no situations.

Subjects who checked the top statement (Attitude I) are designated, in the results, as "unprejudiced" subjects; while those who checked the other statements are designated as "prejudiced" subjects. It was felt that the results of this classification (see Table 2) justify the initial assumptions made in using it. The subjects and the roles evaluated were as follows:

Unprejudiced	{ "a (white) person"
	{ "a Negro"
Prejudiced	{ "a (white) person"
	{ "a Negro"

The results are presented in the form of mean scale value differences (m.s.v.d. These are computed by taking the mean scale value of the ratings assigned to a trait by one group and subtracting it from the mean scale value assigned to it by another group. For example, if for the word "quiet" when applied to a Negro, the mean scale value of the prejudiced subjects was 1.20 (on the two-point scale, both positive and negative) and the mean scale value of the unprejudiced subjects was .22; then the mean scale value *difference* would be .98 with the prejudiced the higher.

C. DATA AND ANALYSIS

Table 2 presents the differences over .20 in the evaluation of the behavior of a Negro between the prejudiced and the unprejudiced subjects. This figure was selected on the basis of a series of *t*-tests which, although not directly applicable as the assumption of normality was not satisfied, indicated that differences over .20 attained or closely approached significance at the .05 level. A Chi square test upon the mean scale values demonstrated that the two distributions differed significantly at the .01 level.

These results seem quite logical in terms of the known likes and dislikes of prejudiced individuals. This table spells out in detail the main points in the mores that "Negroes should keep their places." It also bears out the initial classification of the subjects. The unprejudiced group prefers that the Negro act liberal, persistent, neighborly; in a generally extroverted, self-assertive manner. The prejudiced group, on the other hand, prefers that the Negro act quiet, obedient, conservative, or, in a generally introverted, ancillary manner.

Table 3 presents the "double standards" of both the prejudiced and the

TABLE 2
DIFFERENCES BETWEEN PREJUDICED AND UNPREJUDICED SUBJECTS IN THE EVALUATION
OF THE BEHAVIOR OF THE NEGRO

Attitude 1 N = 100		Attitude 3 N = 40	
	m.s.v.d.		m.s.v.d.
Unprejudiced subjects value these traits in the Negro more than do prejudiced subjects:		Prejudiced subjects value these traits in the Negro more than do unprejudiced subjects:	
elegant	.67	quiet	.98
persistent	.51	obedient	.89
liberal	.33	conservative	.55
neighborly	.29	respectable	.51
graceful	.29	eager	.32
proud	.28	neat	.27
talkative	.27	good-natured	.26
nationalistic	.26	faithful	.26
witty	.20	careful	.24
		cautious	.20
Unprejudiced subjects dislike these traits in the Negro more than do prejudiced subjects:		Prejudiced subjects dislike these traits in the Negro more than do unprejudiced subjects:	
submissive	.46	passionate	.61
meek	.41	dominant	.58
		stubborn	.52
		loud	.51
		bitter	.37
		quick-tempered	.37
		forward	.36
		critical	.35
		jealous	.32
		childish	.32
		sensitive	.27
		carefree	.21

unprejudiced subjects in their evaluations of a Negro contrasted with their evaluations of a white. The m.s.v.d.'s were computed by subtracting the mean scale value of the trait when applied to the Negro from the mean scale value of the trait when applied to the white.

It is apparent that both groups possess "double standards" in terms of the conduct of a Negro when compared with the conduct of a member of their own social group. The prejudiced individuals think it more complimentary for a Negro to act meek, quiet, and obedient; while the unprejudiced think it more complimentary for a Negro to act proud and progressive. For both groups, the larger m.s.v.d.'s appear quite consistent. Some of the smaller differences, however, do not appear so. This apparent inconsistency is a function of the method of comparison and will be dealt with in detail in a later table.

TABLE 3
DOUBLE STANDARDS OF PREJUDICED AND UNPREJUDICED WHITE FEMALE SUBJECTS

Attitude 1 (unprejudiced)	m.s.v.d.	Attitude 3) (prejudiced)	m.s.v.d.
<i>Trait valued more in the Negro</i>			
proud	.77	meek	1.11
nationalistic	.59	quiet	1.04
traditional	.34	obedient	.63
progressive	.29	conservative	.52
religious	.29	nationalistic	.40
serious	.28	serious	.40
modern	.28	musical	.38
eager	.28	eager	.34
elegant	.27	proud	.31
musical	.26	modest	.30
liberal	.21	thrifty	.27
thrifty	.21	traditional	.26
<i>Trait valued more in the White person</i>			
respectable	.33	aggressive	.84
faithful	.29	passionate	.61
clever	.24	elegant	.53
trusting	.23	happy-go-lucky	.49
patient	.21	sociable	.34
		talkative	.34
		enthusiastic	.30
		witty	.28
		independent	.27
		ambitious	.27
<i>Trait disliked more in the Negro</i>			
aggressive	.21	dominant	.55
		carefree	.44
		forward	.32
<i>Trait disliked more in the White person</i>			
loud	.43	strict	.80
meek	.40	timid	.80
timid	.40	submissive	.57
bitter	.35	shy	.52
quick-tempered	.35	unsympathetic	.43
strict	.27		
childish	.25		
submissive	.23		

Newcomb (2), in his Bennington College studies of radicalism, confirmed the tacit hypothesis that personality patterns of prejudiced individuals differed markedly from those of more liberal, unprejudiced individuals. This hypothesis seemed amenable to test using the method of value differences to determine whether the traits valued by the unprejudiced subjects would differ from those valued by the unprejudiced subjects.

The word-list to evaluate the behavior of "a person . . . him" was given to 150 subjects with the attitude scale towards the Negro attached. The m.s.v.d.'s between the prejudiced and the unprejudiced subjects in their evaluations of an object not connected with their prejudice are presented in Table 4.

TABLE 4
DIFFERENCES IN VALUES: PREJUDICED AND UNPREJUDICED SUBJECTS

N = 151	m.s.v.d.		m.s.v.d.
Unprejudiced subjects value more:		Prejudiced subjects dislike more:	
sensitive	.55	strict	.70
graceful	.40	stubborn	.43
Prejudiced subjects value more:		shy	.40
aggressive	.49	unsympathetic	.34
cautious	.41	critical	.30
good-natured	.33	meek	.30

It is apparent that the method of value differences provides results that are of a different type than those obtained using a stereotype technique. When the individual stereotypes, his probable frame of reference will be the popularly accepted, press-sponsored version of the group's behavior. The method of value differences, however, defines those areas in which the rôle expectancies of one group are different from, or in conflict with those of another group. It is a simple method to administer, is extremely flexible, can be given in a group setting, and provides definite insight into various trouble spots of inter-group relations.

There are three general areas in which the technique proposed in this paper can be advantageously applied. These are:

1. *Value Differences.* When two groups evaluate the behavior of the same object or group having the same relationship to both groups. For example, engineering and art students evaluating the behavior of "a housewife."

2. *Value Conflicts.* When one group rates another group and this is contrasted with the second group's ratings of itself. For example, the ratings of whites of the behavior of Negroes contrasted with the ratings of Negroes of the behavior of Negroes. The areas of difference are those in which the expectancies of the two groups are in conflict.

3. *Double Standards.* The ratings of a group of its own behavior contrasted with its ratings of another group's behavior. For example, the ratings of college males of the behavior of "a college man" contrasted with their ratings of "a college girl."

The behavior or rôle to be evaluated can be made as specific as the experimenter might desire. For example, he might inquire of the expected rôle-behavior of "a young man just out of high school applying for his first job." The technique is particularly well-adapted for exploring the different rôles the same individual is expected to play: father with his children, husband with his wife, grown son with his mother, or businessman with his competitors.

The results indicate that prejudice is not a simple affair to analyze in regards to objects not connected with the prejudice itself. There are no clear-cut trends in terms of differences in evaluations. The m.s.v.d.'s appear to cluster about relationships towards authority (strict, critical, meek, cautious, stubborn, aggressive) but these are neither definite nor mutually consistent. Table 4 indicates however that the differences between prejudiced and unprejudiced subjects in Table 2 were due to differences in attitude towards the Negro and not to generalized valuation patterns.

D. DISCUSSION

In the course of the investigation, several points arose which warrant further consideration. The first of these concerns the possible application of these findings. This can probably best be answered by a referral to the results themselves. Table 2 defines those areas in which the valued rôle behavior for the Negro differs from the prejudiced to the unprejudiced subjects. These results could be extended to include the way the Negro prefers a Negro to act; contrasted with the way the prejudiced or unprejudiced white imagines he should act. This extension would define specifically those areas in which the valued behavior-patterns were in conflict.

This table could also lay the basis for a supplement to present-day attitude scales towards the Negro. The subject could be presented with this list of traits (when applied to the Negro) to evaluate. The sum-total assigned to quiet, obedient, conservative, meek, and respectable could be obtained. From this figure we would subtract the sum-total assigned to proud, persistent, neighborly, independent, and critical. A high positive figure would suggest a high degree of prejudice while a negative figure would be indicative of relative non-prejudice.

Relevant to Table 3, a short note should simplify the interpretation of the "double standard." First of all, in the literal sense of the words, the term "double standard" is a definite misnomer. A double standard is usually acknowledged to be present when the same-type yardstick is applied to different objects in different amounts. It would pertain to such judgments

as how sociable you'd like a Negro to be in relation to how sociable you'd like a white person to be. At first glance this is exactly what the results in Table 3 illustrate. It is more complimentary for a Negro to be meek, obedient, quiet, etc., than for a white person to act so.

The drawback appears when the experimenter attempts to analyze the exact meaning of these results. It readily becomes apparent that the same word means two different things when applied to two different groups. The "ambitious" of "ambitious businessman" is not the same as the "ambitious" of "ambitious housewife." The same principle applies to the prejudiced subjects' predilection for "modest" Negroes. It is felt that this refers to a facet of the "Negroes should stay in their places" theory, rather than the "modest" desired in the football hero or renowned scientist. Attention is pointedly called to the post-test interviewing needed in the interpretation of the results. This general caution would also apply to the Katz-Braly experiments, or any other in which the subject responds to a series of short, relatively unstructured items.

The attention of the reader is also called to a pitfall that arises when value differences between the sexes are evaluated. The subject is sometimes prone to confuse the sex of "the person" being evaluated. It had been thought that a "him" or a "her" typed into the directions would have sufficed to remedy this difficulty. Unfortunately, it readily became apparent that the perceptual fields of a number of subjects were noticeably blind to these directions. For this reason, the experimenter emphasized orally that what was desired was the evaluation of the behavior of a male rather than a female. Therefore, it is suggested that future experiments utilize the more specific terms "a man" or "a woman" rather than the more ambiguous "a person" even though a "him" or "her" immediately follows.

The qualitative attributes of the results can probably be pointedly demonstrated by a comparison with those found by using the Katz-Braly technique. The Katz-Braly directions and adjective list were distributed to 60 students in an elementary psychology class. The subjects were asked to select those adjectives they thought most typical of the Negro. These adjectives, together with their percentage frequencies are presented in Table 5.

E. SUMMARY

1. A method for investigating valued rôle behavior was presented.
2. Differences in these patterns were found to exist between prejudiced and unprejudiced subjects for both the behavior of whites and Negroes.
3. Methodological aspects and limitations of the technique, notably

TABLE 5
STEREOTYPE OF THE NEGRO FOUND BY THE KATZ-BRALY METHOD

Male subjects		Female subjects	
Trait	% frequency	Trait	% frequency
musical	.66	musical	.50
pleasure-loving	.48	pleasure-loving	.45
lazy	.41	superstitious	.42
happy-go-lucky	.41	imaginative	.36
superstitious	.34	faithful	.36

in regards to item structure, were discussed and suggestions put forth for further experimentation.

4. The method appears to offer new insight into three general areas of intergroup relations: value differences, value conflicts, and double standards.

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AREAS OF VALUE DIFFERENCE: II. NEGRO-WHITE RELATIONS*

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A. INTRODUCTION

Alongside the structuring by the white of the rôle of the Negro exists the structuring by the Negro of the rôle of the Negro.² When these rôles are at variance, conflicts in the inter-actions between the races are apt to arise. To determine the extent of the divergence, the evaluations of Negro subjects were contrasted with the evaluations of the prejudiced white subjects in the previous experiment.

B. PROCEDURE

The subjects used in this phase of the experiment were 100 female Negro undergraduate students at Langston University. They were given the word-list to evaluate the behavior of "a Negro." The administration took place under the supervision of Negro experimenters familiar to the subjects.

C. DATA AND ANALYSIS

Table 1 presents the conflict in valued Negro rôle behavior between 40 white female students at the University of Oklahoma designated as prejudiced in the previous experiment and 100 Negro female students at Langston University. Both groups evaluated the behavior of a Negro. The raw data

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²On the surface this assumes patterns of belief and expectancy common to particular groups; i.e., males, females, businessmen, housewives, etc. This, however, is not the case. The assumption is made only that if the average response of individuals in a designated category were computed, it would differ from the average response of individuals in another category. The differences therefore, are more efficacious in analyzing a specific situation rather than in predicting the occurrence of a certain response pattern in an individual member of a designated group. The "average response" is a hypothetical construct designed only to convey a particular subjective connotation to the reader, and not as the paradigm of the responses within a particular group. This general caution certainly applies in the contrasting of responses of "white students" with those of "Negro students." For a further elaboration of this point, the reader is referred to Myrdal (1, p. 106).

for the Langston group appears in Table 2 of this paper. The results are again presented in terms of mean scale value differences (m.s.v.d.).

TABLE 1
VALUE CONFLICT IN THE EVALUATION OF THE BEHAVIOR OF A NEGRO

Negroes value more in the conduct of a Negro than do prejudiced Whites:		Prejudiced Whites value more in the conduct of a Negro than do Negroes:	
	m.s.v.d.		m.s.v.d.
forward	1.86*	witty	1.39**
passionate	1.09*	jovial	.79**
elegant	1.04*	practical	.71
aggressive	.97*	quiet	.54
persistent	.78*	patient	.49
proud	.66	original	.45
sensitive	.43*	good-natured	.42
dependent	.43*	faithful	.40
sociable	.40	conservative	.40
liberal	.39	shrewd	.38**
modern	.34	well-liked	.35
graceful	.32	calm	.32
nationalistic	.27	obedient	.22
independent	.24	loyal	.22
		kind	.21
Negroes dislike more in the conduct of a Negro than do prejudiced Whites:		Prejudiced Whites dislike more in the conduct of a Negro than do Negroes:	
	m.s.v.d.		m.s.v.d.
timid	.41	dominant	.99
shy	.39	quicktempered	.75
		jealous	.70
		bitter	.59
		childish	.59
		critical	.45
		stubborn	.43
		loud	.33
		unsympathetic	.30

*Valued by Negroes, disliked by prejudiced Whites.

**Valued by prejudiced Whites, disliked by Negroes.

This table brings into sharp focus many salient points in Negro-white relations. The differences in evaluations are large and fall into such patterns as are accessible to further study. The first such pattern is the relative preference by the Langston group for the Negro to act proud, persistent, forward, liberal, and independent. (These results are, of course, a function of the evaluations of the group of 40 prejudiced white students.) The meaning of this pattern appears self-explanatory when reinforced by the relative preference of the prejudiced white that the Negro act quiet, patient, good-natured, faithful, calm, obedient, and loyal. The Negro therefore, pre-

TABLE 2
BEHAVIOR OF THE NEGRO EVALUATED BY NEGRO SUBJECTS

Trait	Mean scale value N = 100	Trait	Mean scale value N = 100
sociable	1.45	careful	1.07
gentle	1.11	jealous	— .73
enthusiastic	1.10	bitter	—1.16
proud	1.06	graceful	1.24
passionate	.34	calm	.83
loyal	1.46	meek	.13
submissive	— .16	stubborn	— .92
talkative	.01	aggressive	.47
eager	1.06	conservative	.75
carefree	— .14	modest	.94
kind	1.39	forward	.99
practical	.72	timid	— .59
religious	1.47	happy-go-lucky	— .12
critical	— .23	athletic	1.15
strict	— .12	witty	— .34
serious	1.05	progressive	1.34
unsympathetic	— .98	elegant	.84
helpful	1.31	nationalistic	.77
shy	— .44	respectable	1.59
slow	— .75	musical	1.29
jovial	.21	quick-tempered	— .60
trusting	1.38	cautious	.74
faithful	1.40	clever	1.00
shrewd	— .18	quick	1.04
well-liked	1.28	loud	—1.15
independent	1.12	childish	—1.06
ambitious	1.56	patient	.89
neat	1.55	dependent	.33
modern	1.19	sensitive	.05
liberal	.97	traditional	.17
thrifty	1.19	good-natured	1.26
obedient	1.08	persistent	.55
quiet	.66	dominant	— .16
neighborly	1.26	original	.85
		sympathetic	1.17

fers that his group act in a more self-assertive, extroverted manner while the prejudiced white prefers that he act humble, seclusive, and retiring.

The one exception to this is the evaluation of the word "dependent." This carried a different connotation for the Negro subjects than it did for the whites. To the Negro, it represented coöperativeness and mutuality in group relations, rather than the subservience of submissive, timid, or meek. This again emphasizes the post-test interviewing needed in interpreting results utilizing semi-structured stimuli. In this case, however, the relative lack of item-structure appears to be as efficacious in securing group differences as the actual differences in trait preference.

The Negro subjects disliked the traits "witty" and "jovial" while the prejudiced white favored them. This is probably a function of a distaste for the stereotype of the Negro carried in the mass communications media. It appeared that "witty" and "jovial" evoked images of a burnt-cork, gaudily-dressed vaudeville comedian singing, dancing, and waving his hands in the air.

"Practical," along with "patient," seemed to the Negro subjects to represent a passive acceptance of the rôle set for them in a Southern state. These results closely parallel those found by Johnson in his extensive interviews with Negro youths in the Southern states. The following passage from *Growing Up in the Black Belt* (p. 242) seems especially pertinent:

... Negro youth do not as a rule take pride in the qualities for which Negroes are most appreciated by the whites. Only a few of them, for example, recognize loyalty, uncomplaining industry, and patience as having racial prestige value comparable to the importance given these traits by the white group when they wish to speak favorably of Negroes. It is a convenience in the biracial situation to be regarded as loyal, tractable, happy, and hard-working; few of the interviews with these youth revealed, however, that they were proud of these racial virtues. Indeed, few of the comments assumed these virtues to be racial, or the qualities to be virtues.

There are essentially two areas in which expectancies of the Negro subjects are in conflict with expectancies of the prejudiced white subjects. These areas are (a) the stereotype of the Negro as jovial, witty, good-natured; and (b) assertiveness versus seclusiveness. It is regrettable that temporal limitations prevented the collection of responses from subjects who could be classed as very liberal in regards to matters of race relations. These would have filled out very nicely our picture of this particular value conflict. It is felt that the liberal subject would prefer that the Negro act more proud and persistent than the Negro would desire, while the prejudiced subject, as we have seen, prefers that the Negro act less proud and persistent than he desires. The opposite relationship would hold for the traits "quiet" and "submissive."

Table 3 presents a somewhat different view of the patterns of expected rôle behavior as it covers the differences in evaluations when traits are found in a member of one's own social group. In this table, evaluations by Negroes of the behavior of a Negro are contrasted with evaluations by whites of the behavior of a white person.

This table illustrates succinctly a very interesting aspect of behavior evaluating. That is, namely, that two types of behavior considered as polar in nature can both be liked or disliked without an essential inconsistency on the

TABLE 3
DIFFERENCES IN EVALUATION OF TRAITS IN A MEMBER OF OWN ETHNIC GROUP

White subjects value more in a White than Negro subjects value in a Negro:		Negro subjects value more in a Negro than White subjects value in a White:	
	m.s.v.d.		m.s.v.d.
witty	1.93*	forward	1.55**
jovial	1.11*	proud	1.20
good-natured	.41	aggressive	.54
enthusiastic	.40	eager	.53
well-liked	.38	nationalistic	.50
happy-go-lucky	.35*	modern	.38
carefree	.29*	independent	.30
talkative	.27*	liberal	.29
practical	.78	persistent	.28
patient	.60	progressive	.23
calm	.41	meek	1.18**
faithful	.37	dependent	.70**
sympathetic	.33	quiet	.54
kind	.30	obedient	.49
helpful	.21	sensitive	.47**
original	.70	serious	.47
shrewd	.58*	thrifty	.42
clever	.29	modest	.27
		musical	.48
		passionate	.40
		elegant	.36
		athletic	.23

White subjects dislike more in a
White than Negro subjects
dislike in a Negro:

	m.s.v.d.
quick-tempered	.71
jealous	.54
bitter	.54
unsympathetic	.52
dominant	.43
strict	.30
critical	.29
loud	.21
childish	.66
submissive	.63

*Trait valued by Whites but disliked by Negroes.

**Trait valued by Negroes but disliked by Whites.

part of the subject. For example, the white female freshmen in the preceding experiment thought that to be either dominant or submissive was uncomplimentary, but that it was more uncomplimentary for a person to be submissive than to be dominant. In Table 3, this type of result is also present. We see two distinct patterns of difference between the Negro and white evaluations of a member of their respective social groups. The Negro

not only desires that a Negro act more forward, proud, and aggressive than does a white desire a white to act; but he also desires that a Negro act more quiet, meek, and obedient than does the white find complimentary in a white. In other words, while the white values both patterns only slightly, the Negro values them a good deal more. Post-test interviews suggested an explanation in terms of the former pattern, proud-aggressive-forward, being esteemed as the idealized form of behavior; admired as the way the individual would desire to act. The latter pattern however, consisting of meek-quiet-obedient, is also thought complimentary as a concession to reality; the way the individual is forced to act, complimentary on the criterion of permitting the individual to adjust to his environment. The experiential factor of an internalization of the values of the dominant group is also relevant.

The traits in Table 3 are grouped into categories so as to make them more meaningful in terms of patterns rather than items of expectancy.

D. DISCUSSION

In the course of an integration of Tables 1 and 3 of this experiment with Tables 2 and 3 of the preceding experiment, certain hypotheses arose which merit further consideration. The first of these concerns the evaluations by the unprejudiced white subjects. Although, as was made explicit in the preceding paper, the term "unprejudiced" is used with caution in view of the rather broad classificatory device employed, we may still note the appearance of certain distinct trends. The unprejudiced group values the Negro's acting proud, persistent, and liberal (which is the idealized pattern of the Negro subjects). However, the unprejudiced group does *not* value the Negro's acting meek, quiet, and obedient. In other words, the unprejudiced group parallels the Negro group in their preference for the ideal pattern of behavior, but they do not possess the realistic view of the traits "quiet," "meek," and "obedient" held by the Negro subjects. Thus where the ideal pattern held by the Negro subjects is tempered by a parallel realistic pattern, no such mediating influence exists for the unprejudiced white subjects. It would not be overly presumptuous to attribute this divergence in valued rôle behavior to experiential factors.

The tendency to excuse negative traits when found in a Negro is an integral part of the evaluations of both the Negro subjects and the unprejudiced white subjects. This can be accounted for on the basis of (a) a greater friendliness towards the group, (b) an understanding and appreciation of the factors contributing to the formation of the traits, and (c) a more realistic appraisal of the traits within their situational context.

Myrdal's account of strong caste feelings might also be germane to this excusal of negative traits. Myrdal suggests, in addition to strong in-group feelings, latent hostility within the Negro community which seeks an outlet in any form possible. The predilection for the traits aggressive and forward found in Table 3 certainly bears out Myrdal's analysis.

The relative excusal of the negative traits by the unprejudiced rather than the prejudiced subjects appears to dispel a once-prevalent myth relating to a particular aspect of race relations. This concerns the belief that prejudiced individuals are more prone to excuse a negative trait in a Negro than are unprejudiced individuals. The rationale of the prejudiced individual was assumed to be, "Oh, he's just a Negro, he can't know any better." This projected line of reasoning certainly is not substantiated in our results. As it turned out, the prejudiced subjects were more prone to excuse such traits as loud, jealous, or childish, than were the unprejudiced subjects.

The dislike expressed by the Negro subjects for the traits witty and jovial presents further evidence in terms of a reaction against the mass media stereotyping. It is no longer complimentary for a Negro to act witty or jovial. In fact, it is more uncomplimentary for a Negro to act witty than for him to act critical, meek, or dominant. A more vivid interpretation of this reaction formation is presented by Myrdal:

The good humor that is associated with the Negro's emotionalism is the outcome, not only of the attempt to enjoy life at its fullest, but of a stark fear of the white man. Much of the humor that the Negro displays before the white man in the South is akin to that manufactured satisfaction with their miserable lot which the conquered people of Europe are now forced to display before their German conquerors. The loud, high-pitched cackle that is commonly considered as the "Negro laugh" was evolved in slavery times as a means of appeasing the master by debasing oneself before him and making him think one was contented. Negroes still "put it on" before whites in the South for a similar purpose (1, p. 960).

With reference to Myrdal's analysis, the reaction of the Negro to the traits witty and jovial may be easily understood.

As a final note, the authors would like to evaluate briefly the technique presented in the preceding paper. In terms of securing logical and meaningful group differences, it appears to perform quite satisfactorily. The problem of lack of item structure still remains, however. There is a definite need for post-test interviewing to determine connotations attached to words that groups differ upon. It is felt that if this difficulty could be obviated through utilization of items with greater structure (for example, short sen-

tences rather than single traits), the validity of the technique and the applicability of the results would be greatly enhanced. This suggestion is put forth both in reference to the preceding paper and as a point for further research.

E. SUMMARY

A form requiring the evaluation of the rôle of a Negro was presented to 100 female undergraduate students at a Negro university. These ratings were contrasted with ratings by 40 white female undergraduate students designated as prejudiced in a previous experiment. The areas of value difference may be summarized as follows:

- | | |
|--------------------------|----------------------------------|
| 1. Joviality | witty, carefree, happy-go-lucky |
| 2. Practicality | practical, patient, calm |
| 3. Assertiveness | forward, proud, aggressive |
| 4. Seclusiveness | meek, dependent, quiet |
| 5. Anti-Social Qualities | quick-tempered, bitter, critical |

It is hoped that further research upon the areas of value difference and conflict outlined in this paper will assist in the reduction of tensions generated within these trouble spots of inter-group relations.

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THE FERGUSON RELIGIONISM SCALE: A STUDY IN VALIDATION*

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A. INTRODUCTION

For a long time psychologists have been interested in the study of the religious attitudes of individuals. During the past 20 years or so a number of scales have been developed for estimating the intensity and direction of such attitudes. If reliable and valid, such scales offer significant possibilities for research on the rôle of religious attitudes in social behavior and individual personalities.

Ferguson (3, 4, 5) developed three primary attitude scales, allegedly measuring humanitarianism, nationalism, and religionism, by factor analyzing data from Thurstone scales of attitudes toward treatment of criminals, capital punishment, patriotism, censorship, war, communism, law, birth control, evolution, and the reality of God. The high reliability of these scales has already been established (5). The evidence as regards validity is limited and subject to certain methodological criticisms. The present study was designed to test certain hypotheses as regards ways of validating such an attitude scale, and to apply the results to an estimate of validity for the Ferguson Religionism Scale.

Religionism is considered by Ferguson to exist on a continuum of conservatism-liberalism. A conservative attitude (high religionism score) is characterized as one favorable toward belief in the reality of God and unfavorable toward belief in birth control and evolution. A liberal attitude (low religionism) is characterized as being unfavorable toward belief in God and favorable toward belief in birth control and evolution.

If the Ferguson scale were valid, we would expect the following conditions to hold:

1. The scale should be able to differentiate between denominations, that is, we would expect to find members of one denomination regularly more or less conservative than those of another.
2. Students attending denominational colleges would have more conserva-

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tive attitudes than students of the same denominational affiliation in a state university.

3. Students rating themselves high on belief in the practices of their particular denomination would score higher (more conservative) than those rating themselves as low.

4. Students reporting themselves as active participants in church activities would score higher (more conservative) than those describing themselves as inactive.

5. Students, who have one parent from a conservative and the other from a liberal denomination, would score between the means of the two parental groups.

6. Judges' ratings of the free associations of subjects to stimulus cards should correlate highly with the subjects' scores on the Ferguson Scale.

B. THE SAMPLE

The Ferguson Primary Attitude Scales together with an information sheet were administered to undergraduate psychology students at the University of Illinois and at several denominationally affiliated institutions: a Catholic college, Episcopalian, Jewish, Lutheran and Methodist.¹ Since sex differences as regards religionism have already been well established (2, 6, 9), i.e., women in general are more conservative, and since we wished to avoid the complicating effects of such differences, only the responses of men have been considered in this study. (There is one exception: in considering religiosity scores of children of mixed marriages, scores of women have also been reported.)

One of the questions on the information sheet dealt with the denominational preference of the subject. The choice "Protestant" was to be used when the subject did not have any denominational preference but still wanted to be identified with the Protestant group. "None" was to be used only when the subject did not have a preference for any particular denomination.

Although responses were received from subjects indicating over 70 denominational affiliations, only 10 of these had a large enough number of cases to be considered. Total *N*'s for men in these 10 denominations are given in Table 2.

The largest individual sample was from the University of Illinois. In order to check the representativeness of this sample, several of the subjects'

¹In this connection we wish to acknowledge with thanks the coöperation of the following: Ilione C. Schadt, Ed Wessling, Richard R. Caemmerer, Frank J. Holmes, Vincent V. Herr, Walter Smith, Paul von Ebers, and Isaak D. Orleans.

background factors obtained from the information sheet were tabulated, and on the basis of these factors the Illinois male sample of 615 was compared with the national sample of 12,000 cases reported by the Allin-Smiths (1). The three criteria used were: educational status, income, and occupational status. Since the two studies used different types of questions, rank order comparison was used, i.e., the major religious denominations were ranked from high to low (Table 1). The rank order coefficients were: educational

TABLE 1
REPRESENTATIVENESS OF ILLINOIS SAMPLE

High	Educational status		Income		Occupational status	
	Allin.	Ill.	Allin.	Ill.	Allin.	Ill.
	Cong.	Epis.	Cong.	Jew	Jew	Epis.
	Epis	Cong	Pres	Epis	Cong	Jew
	Jew	Pres	Epis	Pres	Pres	Cong
	Pres	Meth	Jew	Cong	Epis	Pres
	Meth	Luth	Meth	Meth	Meth	Meth
	Luth	Bapt	Luth	Cath	Luth	Luth
	Cath	Jew	Cath	Luth	Bapt	Cath
Low	Bapt	Cath	Bapt	Bapt	Cath	Bapt

status .69, income .74, occupational status .83. On the basis of these criteria the two samples compared very favorably and it is felt that the Illinois group provides a representative sample.

C. METHODS

1. Denominational Differences

a. Comparison With Other Studies. The 10 groups at the University of Illinois which had a substantial *N* were compared with groups reported by Ferguson, Myers, and Kirkpatrick. Ferguson's study dealt with college students, but since the *N* from any single institution was not large, his denominational breakdowns are based on students from several institutions. This introduces a complication which we have avoided. The Myers study was based on high school students in Indiana, and the Kirkpatrick study on college students at the University of Minnesota.

b. The Illinois data were further analyzed to see whether there were significant differences between denominational groups.

2. Differences Based on Type of College

It is assumed that those institutions which have a close religious affiliation provide a more conservative religious environment than that of a state university. To test this assumption the denominational groups of the Uni-

versity of Illinois, which were determined by the indicated preferences of the subjects, were contrasted individually with the corresponding denominational school; e.g., University of Illinois Catholics were contrasted with Catholics at a Catholic college.

3. Background Factors

a. Agreement. On the information sheet the following question was asked relative to the denominational preference: In regard to this denomination, how would you rate your feelings as to its general practices and beliefs?

A	B	C	D	E
Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree

The subjects were instructed to encircle one of the letters, and the responses were tabled and dichotomized as nearly equally as possible into Low Agreement groups and High Agreement groups. Comparisons were made for those denominations for which the *N* was the largest. These were Catholic, Jewish, Methodist, and Presbyterian.

b. Participation. A further question was asked: How much participation do you average in church activities? (Includes worship, recreation, etc.)

A	B	C	D	E
Once a year or less	More than once a year	Once a month	Once a week	More than once a week

The responses to this question were also tabulated and dichotomized into High and Low groups for the four largest Illinois denominations.

c. Children of Mixed Marriages. In this comparison only the University of Illinois sample was used. Those subjects who had one parent Catholic and one parent non-Catholic were compared with the average scores of the Catholic group and the non-Catholic group, each considered as a whole.

4. Ratings of Free Associations by Judges

Thirty-three subjects were given the Ferguson Religionism Scale. About a week later, they were individually shown three pictures, one at a time: an open Bible, a family with 15 children, and an artist's representation of the different stages of evolution. Subjects were asked "What does this make you think of?" and were encouraged to verbalize. Recordings were made of the subjects' responses to the stimulus pictures and were later played back

to two judges² who independently rated each subject by filling out the Ferguson Religionism Scale the way they thought the subject would have marked it.

D. RESULTS

1. *Denominational Differences*

The 10 largest Illinois denominational groups³ were compared with those reported by Ferguson (6), Myers (8), and Kirkpatrick (7), as shown in Table 2. The rank order correlation between the Ferguson data and the Illinois data is .73, between Myers and Illinois .88, between Ferguson and Myers .88. The Kirkpatrick data appear in general agreement with the others but he only has five categories.

The different Illinois religious denominations were compared to see whether there were significant differences among them. Table 3 shows the resulting critical ratios.

The Illinois categories fall into four statistical groups. Going from conservative to liberal, these are: Group I, the Baptist, Catholic, Lutheran, and the Congregational-Christian Group. (All of the members of Group I are significantly more conservative than the members of Group II, at the 5 per cent level, most at the 1 per cent). Group II, the Methodist, Presbyterian, Protestant Group has its members more liberal than Group I but more conservative (all at the 1 per cent level) than Group III. The Episcopalians are in a marginal position between Groups I and II. Group III is the Jewish Group, more liberal than Group II but more conservative (5 per cent level) than Group IV which is composed of the None category. The ranking with the four groups clearly distinguishable from conservative to liberal is:

Group I	Baptist Catholic Lutheran Congregational-Christian Episcopalian
Group II	Methodist Presbyterian Protestant
Group III	Jewish
Group IV	none

The Kirkpatrick study compared five religious groupings, the findings of which are in apparent accord with ours. Using his own scale of religiosity, Kirkpatrick found no significant difference between Catholics and Lutherans

²We wish to thank G. E. Auer and Irene Lawson who acted as judges.

³The Congregational and Christian denominations were combined.

TABLE 2
COMPARISON WITH OTHER STUDIES

Illinois* College men			Ferguson* College men			Myers HS men and women			Kirkpatrick Minn. men	
N	Denom.	Mean	N	Denom.	Mean	N	Denom.	Mean	N	Denom. Mean
44	None	39.48	59	Don't Know	26.28	10	None	3.40	39	Liberal 2.3
64	Jew	49.47	35	Jew	47.82	27	Jew	4.04	83	Misc 5.0
83	Prot	62.01	121	Prot	55.59	126	Prot	5.46	46	Meth 7.0
65	Pres	66.46	16	Bapt	55.99	70	Epis	5.49	72	Luth 12.6
89	Meth	68.21	23	Epis	56.03	24	Cong. Ch.	5.50	57	Cath 15.3
15	Epis	71.20	29	Pres	56.47	620	Meth	5.62		
29	Cong. Ch.	76.72	41	Meth	64.24	196	Pres	5.69		
47	Luth	77.77	8	Luth	80.36	480	Bapt	6.09		
108	Cath	80.94	40	Cath	86.55	217	Luth	6.18		
18	Bapt	81.94				483	Cath	6.68		

*Ferguson's scores were multiplied by —1 and a constant of 50 was added to simplify comparison.

TABLE 3
DENOMINATIONAL DIFFERENCES AT A LARGE UNIVERSITY

	Bapt	Cath	Luth	Cong	Epis	Meth	Pres	Prot	Jew	None
Cath	.27									
Luth	1.06	.99								
Cong	1.12	1.22	.25							
Epis	1.55	1.57	.99	.82						
Meth	3.27**	4.44**	2.59*	2.13*	.46					
Pres	3.51**	4.57**	2.85**	2.45*	.72	.47				
Prot	4.77**	6.73**	4.26**	3.74**	1.42	1.81	1.21			
Jew	7.01**	9.07**	6.69**	6.15**	3.20**	4.71**	3.05**	3.18**		
None	8.51**	10.52**	8.31**	7.76**	4.57**	6.55**	5.88**	5.14**	2.07*	

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

(both are in our Group I), yet both denominations differed significantly at the 1 per cent level of confidence from the Methodist and "Miscellaneous" groups. No significant difference was found between the Methodist and "Miscellaneous" groups. (We believe that we are safe in assuming that the "Miscellaneous" group of Kirkpatrick's study is roughly equivalent to our Protestant group and would fit in our Group II.) Kirkpatrick's fifth category, the Liberals, seems to be equivalent to our "None" category, and is significantly different from the Methodist-Miscellaneous groups. Thus Kirkpatrick's groups fit easily into our 4-group pattern and tend to support our findings of significant differences among our four groups.

2. Group Differences

Denominational vs. non-denominational schools. The Illinois Catholics, Lutherans, and Jews were significantly more liberal than their co-religionists but the Illinois Methodists and Episcopalians were not significantly more liberal than their co-religionists at denominationally sponsored colleges (Table 4).

TABLE 4
STATE AND DENOMINATIONAL COLLEGES

U. of Illinois	N	Mean	Denom. Schools	N	Mean	Diff.	SMD	CR
Catholic	108	80.94	Catholic Coll. Catholics	69	94.20	13.26	2.07	6.41**
Episcopalian	15	71.20	Episc. Coll. Episcopalians	22	76.18	4.98	6.54	.76
Jewish	64	49.47	Jewish College Jews	68	82.72	33.25	3.63	9.16**
Lutheran	47	77.77	Luth. College Lutherans	149	92.44	14.67	2.93	5.01**
Methodist	89	68.21	Meth. College Methodists	19	69.11	.90	4.68	.19

**Significant at the 1 per cent level.

3. *Background Factors*

a. The Extent of Agreement. The results of this analysis are given in Table 5. All four High Agreement groups scored more conservative than the Low Agreement groups, three of these, Catholic, Methodist and Jewish, significantly so at the 1 per cent level of confidence. The difference in the Presbyterian group was significant at the 5 per cent level.

TABLE 5
AGREEMENT

Denomination	High	N	Low	N	Diff.	SMD	CR
Presbyterian	69.53	49	53.70	16	15.83	7.10	2.22*
Catholic	86.81	81	63.23	26	23.58	5.27	4.48**
Jewish	57.00	38	39.40	25	17.60	6.22	2.83**
Methodist	73.55	60	57.17	29	16.38	6.28	2.61**

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

b. Participation in Church Activities. Here the same four Illinois denominational groups were compared. The Catholic, Jewish, and Methodist High participation groups scored significantly higher (more conservative) on the Religionism scale; the Presbyterian groups scored higher than the Low participation groups but not significantly so (Table 6).

TABLE 6
PARTICIPATION

Denomination	High	N	Low	N	Diff.	SMD	CR
Presbyterian	69.31	35	62.79	29	6.52	5.18	1.26
Catholic	86.73	85	58.77	22	27.96	5.46	5.12**
Jewish	56.40	20	45.33	43	11.07	4.61	2.41*
Methodist	78.09	34	62.11	55	15.98	4.69	3.41**

*Significant at the 1 per cent level.

**Significant at the 5 per cent level.

4. *Children of Catholic-Non-Catholic Marriage*

In this comparison scores of those Illinois subjects who had one parent Catholic and one parent non-Catholic were compared with the Catholic mean scores and the non-Catholic mean scores. The scores of both men and women subjects have been compared. The results show that both men and women who have one parent Catholic and one non-Catholic have average scores which are between the Catholic group and the average of all the non-Catholic groups (Table 7).

TABLE 7
CHILDREN OF MIXED MARRIAGES

	Men		Women	
	N.	Mean	N	Mean
All Catholic	108	80.94	37	85.92
Non-Catholic	497	64.07	268	65.04
One parent Catholic	45	68.62	18	76.66
Children whose denominational preference was				
Catholic	24	81.58	9	85.9
Non-Catholic	21	53.81	9	67.4

5. Ratings of Free Associations by Judges

Correlations were computed between the scores of the subjects on the Religionism scale and the combined judges' ratings of the subjects' responses to the picture stimuli. This correlation was .88. This is significant at the 1 per cent level. The correlation between the ratings of judges was .82.

E. DISCUSSION

1. Denominational Differences

Religious groups in the United States have generally been spoken of as falling into three categories: Catholics, Protestants, and Jews, ranked in that order from conservative to liberal in terms of religionism. Our study, however, shows important differences between the Protestant denominations and the necessity of differentiating among them. These findings are in agreement with those of the Allinsmith study. The old trichotomy is inadequate. While there are some Protestant denominations that are more liberal than the Catholic denomination, there are others that are at least as conservative as the Catholic group. In addition we have shown that those who profess no specific preference are more liberal on the Ferguson scale than the group which was considered by many to be the most liberal, the Jewish group.

2. Group Differences

When some of the denominational groups at the University of Illinois were compared with their co-religionists at church-affiliated schools, significant differences were found among the Illinois Catholics, Lutherans, and Jews and the Catholics, Lutherans, and Jews at the respective church-sponsored schools, but the differences between the Illinois Methodists and Episcopalians and those at the respective church-sponsored schools were not significant.

It was hypothesized that the homogeneity of the student body at the

church-sponsored institutions might be a factor related to these findings. Upon investigation of the denominational school samples, the percentages of students professing the denomination of their school were found to be: Catholic, 88 per cent; Jewish, 99 per cent; Lutherans, 94 per cent; Methodists, 40 per cent; Episcopalians, 59 per cent. Thus we find that the Catholic, Jewish, and Lutheran denominational samples are highly homogeneous; and it is these groups, with overwhelming majorities of their respective denominations, which are significantly more conservative than their co-religionists at the state university. The samples from the Episcopalian and Methodist colleges clearly come from student bodies of considerable heterogeneity, and they are not significantly more conservative than their state university co-religionists. The explanation for the differences may lie in that the atmosphere of the denominational institution where students from one faith are in great majority assumes a more, universal, all-pervasive character, and that there is less interaction with people who might be different and hence liberalizing in that the existing standards might be questioned. The climate of opinion in such an institution is much more likely to preserve the established beliefs unchallenged than would a campus with a substantial minority of people holding diverse beliefs.

As our results indicate, there is no statistical difference between Lutheran and Catholic men at the University of Illinois. Nor is there any difference between the Lutherans and the Catholics at their denominational schools. Yet there is a significant difference between the two Illinois groups and the two denominational school groups. Further, the Jewish Seminary students are significantly more conservative than the Illinois Jews, and are about as conservative as the Illinois Catholics and Lutherans, although still remaining somewhat more liberal than the denominational school Catholics and Lutherans.

Thus our hypothesis that denominational school students score higher than their own co-religionists at the state university is upheld only when that denominational institution is composed overwhelmingly of that denomination and there are relatively few outsiders enrolled. The presence of a sizable minority of students of other persuasions appears to exert a liberalizing influence.

It should be stated at this point that our data cannot be conclusive with regard to the rôle of this "atmosphere of universality" in the college. It is entirely possible that students selected a state university or a denominational college partly because of their religious attitude—i.e., the deeply religious men may have preferred the latter type of school. This would shift the

determinant from college to home and early background influences. The fact that children of Catholic-non-Catholic marriages score below Catholics at the same state school seems to confirm the importance of home conditions. Our study was not designed to answer this question, since we sought only to determine the validity of the Ferguson scale.

3. *Background Factors*

a. Extent of agreement with doctrine. With four groups considered, the division into High Agreement and Low Agreement groups did differentiate significantly at the 1 per cent level for Catholic, Jewish, and Methodist groups and at the 5 per cent level for the Presbyterian group. This supports our hypothesis that those individuals expressing greater agreement with the denominational practices would score higher on the Religionism scale.

b. Participation. A comparison of the same four religious denominations regarding reported participation in church activities reveals highly significant differences with two of the groups; a significant difference with one; and an insignificant difference with the fourth. In all cases the means of the High participation group were higher on the Religionism scale and therefore, although one of the differences is not significant, we feel that our hypothesis that those scoring higher on the Religionism scale tend to have greater participation in church activities is supported.

4. *Children of Catholic-Non-Catholic Marriages*

The results of our study were in harmony with our prediction that children of a Catholic-non-Catholic marriage would score between the average scores of the Catholic groups. However, when we consider the personal preferences of the children, we find them close to the means of their respective groups (Table 7).

5. *Ratings of Free Associations by Judges*

Our findings indicate that the free verbal responses of the subjects to the pictures provide a satisfactory basis for judging the intensity of their religious attitudes. The ease of such judgments is indicated by the reliability of .82 for two independent judges. This further strengthens our belief in the validity of the Ferguson scale as a predictor of the religious behavior of college males and indicates that it can be used for individual as well as group predictions.

F. SUMMARY

Our findings lead us to the conclusion that the Ferguson Religionism Scale is a valid index of religious beliefs and behavior of college men. This con-

clusion can be held at a high confidence level in so far as group comparisons are concerned, and at a moderately high level as regards comparisons of individuals.

1. Men at denominational schools overwhelmingly of one faith are significantly more conservative than their co-religionists at a state university. Either selection or the atmosphere of the university (or both) may be important in this regard.

2. The traditional order of conservatism (Catholic, Protestant, Jewish) is revealed by the scores. It is important to note, however, that the test reveals the inaccuracy of such a simple classification. Some Protestant groups are as conservative as the Catholics, and the "None" group is more liberal than the Jewish group.

3. Self-reports of participation in church activities, and of agreement with doctrine, agree significantly with Ferguson scores.

4. Children of Catholic-Protestant marriages score midway between Catholic and Protestant means.

5. Free associations to pictures, when rated by judges, correlated .88 with the Ferguson score. This correlation indicates that even for individual predictions the scale has substantial validity.

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BODY HEIGHT IN MATE SELECTION*

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A. INTRODUCTION

The present study is part of a more extensive research project dealing with the causes of attraction in heterosexual relationships. It is specifically concerned with one aspect, namely whether the preference for a disproportionately tall or short partner can be linked to certain personality features, and if so, what these features are.

Undoubtedly, body height plays a rôle in the process of forming an attachment. The norm in our culture is that among lovers and married couples the man is taller than the woman. The social concept follows the natural pattern of growth in the species. At the same time, however, it rigidifies the pattern of size relations. While equal size of the partners is tolerated and, when both partners are tall, even considered appealing, the union of a tall woman with a short man appears offensive to taste.

Though socially induced, consciousness of height relations is emotionally cathexed, however. Since growth is considered an important achievement, children are proud of surpassing others and of approaching or even—in adolescence—exceeding the height of their parents. If we further add the power tallness gives and the disadvantages shortness holds for children and adolescents in the group of their contemporaries, the significance of height in the competition between the sexes, the equating of tallness with adulthood and shortness with the subordinate estate of childhood, we can understand the desirability and "beauty" of tallness.

Although these ideas are partly intellectually perceived, in mate selection they assert themselves effectively through the emotions. Most men do not feel attracted to taller women; shorter males, as a rule, do not strike the female as true men.

The significance of height relations is sometimes outbalanced by economic or status considerations, or by sexual and personality elements of special urgency. Similarly may the unavailability of a mate of proper height lead to a compromise solution. In most of these instances, the socially prescribed

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pattern is, nevertheless, preserved. Occasionally, however, individual predictions seem to run counter to the norm. This in particular is the phenomenon that interests us. If we should be able to eliminate the influence responsible for compromise solutions, specific preferences deviating from the norm may reveal themselves as functions of personality needs.

B. THE SIGNIFICANCE OF HEIGHT DIFFERENCES

Our first question concerns the relative significance of "proper" height relations for mate selection.

In our survey people between 16 and 27 years of age were asked to describe the characteristics of a desirable male and a desirable female. The intention was to establish their ideal concepts of both sexes. In the vast majority of responses the description of the cross-sex ideal took the shape of an imaginary or real love partner or mate, the description of the respondent's own sex that of his ego-ideal. Since an unexpected number of replies referred to body height, another group of respondents was asked—after their views had been recorded—to state in addition their own body height. A third group, people who were married or engaged to marry, was asked to put down only their own and their partners' height. The purpose was to establish an approximate average of actual male-female size relations with which the desired or "ideal" size relations could be compared (Table 3).

The study sample consisted of 410 persons, 227 males and 183 females; the control (third) group of 192 persons acting for 192 couples, or 384 individuals. In the sample group, 242 persons (59 per cent) made one or more references to height, not counting those who referred only to their own actual height. In terms of responses the relative significance of body height appears thus: The total number of responses received from the 410 respondents was 4,211. They involved appearance, social qualities, economic and status characteristics, intelligence, education, interests, character traits, religion, and sexual factors. The responses referring to appearance numbered 1,206 and thus comprise 28.7 per cent of the total. Within them, the spontaneous references to height amounted to 342 replies, that is 8.1 per cent of the total responses and 28.3 per cent of all responses referring to appearance.

C. RESPONSES REFERRING TO HEIGHT

Of the 242 persons who spontaneously commented on height, 76 (44 males and 32 females) remarked on it in general terms, stating that the male should be tall or the female short or the male taller than the female, etc. (Table 2).

Seventeen referred to their own height and that of the same-sex ideal, 78 to their own height and the ideal of the opposite sex, 38 to their own height and the desirable height of both sexes, and 33 to the ideal heights of both sexes without mentioning their own height (Table 1).

TABLE 1
RESPONSES REFERRING TO HEIGHT

	Males	Females	Total
Reference to respondent's and partner's actual height	—	—	192
Reference in general terms	44	32	76
Reference to own height and the same-sex ideal	12	5	17
Reference to own height and height of cross-sex ideal	50	28	78
Reference to own height and the ideals of both sexes	27	11	38
Reference to the ideal heights of both sexes omitting actual height	13	20	33
Reference to respondent's actual height only	51	32	83

In the sample concerned with *actual* size differences, the differences vary from height group to height group. The schematized averages for men rise from the couples whose male is 5'4" to the couples in which the male is 6'3" tall. The lowest difference is three inches, the greatest 7.5 inches. For women the difference averages fall from the couples with a female of 4'11" to the couples in which the female is 5'9". The greatest difference is 7, the smallest 3 inches. The difference averages for males coincide with those of the females midway between the mode for female height (5'4") and the mode for male height (5'8").¹ Practically that means that the chances for a man of 6 feet and above and of a girl of height 5'3" or below to find a mate differing in height 4 to 5 inches are limited. The farther below the female mode the girl's height group and the farther above the male mode the man's height group, the greater must be the number of those who attach themselves to persons of incongruous heights. The limitation of their choice is reflected in the increasing average height differences between the sexes.

Yet there are differences between the averages of actual heights and those of desired heights for which this phenomenon does not account. In most of the 192 couples the men are taller than the women. In five couples the partners are of equal height and in one the woman is taller than the man. Nothing in this score of actual height differences indicates whether these deviations are

¹Figures for male and female height modes were obtained from a study conducted by the Metropolitan Life Insurance Company, New York, of a nation-wide sample of 358,323 people. The exact figures are 5 feet 8½ inches for males and 5 feet 4¼ inches for females. In our sample all fractions are omitted. The modes computed from it coincide otherwise with those of the larger sample.

desired or compromise solutions. However, when the wish for deviating height relations is explicitly expressed—as it is in the responses expressing ideal height relations—we can focus our attention on motivations resulting from the individuals' personalities.

D. DESIRED HEIGHT DIFFERENCES

In the account of desired height relations, too, the general trend is in agreement with the social norm. In the group of the 76 people (Table 2) who refer to height differences in general terms only one man and one girl describe the desirable male as short, only three males and two females depict the female as tall. Four males and three females describe both partners as of medium

TABLE 2
REFERENCES IN GENERAL TERMS

	Male state		Female state		Total
	Males	Females	Males	Females	
Should be					
Tall	13	3	8	2	26
Taller than opposite sex	8	0	2	0	10
Short	1	4	1	3	9
Shorter than opposite sex	0	3	0	2	5
Medium	1	2	2	4	9
Female short, male tall		5		5	10
Both medium		4		3	7
Total	23	9	12	8	11
					76

TABLE 3
AVERAGE HEIGHT DIFFERENCES

Height	Actual differences		Desired differences	
	Males	Females	Males	Females
4'11"	—	7"	—	—
5'0"	—	6.5"	—	11"
5'1"	—	6"	—	6.5"
5'2"	—	5.5"	—	6"
5'3"	—	5"	—	5"
5'4"	3"	4.5"	8"	4"
5'5"	3"	4"	4"	5"
5'6"	3.5"	3.5"	5.5"	7"
5'7"	3.5"	3.5"	5.5"	—
5'8"	4"	3"	6"	2"
5'9"	4.5"	3"	5.5"	—
5'10"	5"	—	6"	4"
5'11"	5.5"	—	6"	—
6'0"	6"	—	7.5"	—
6'1"	6.5"	—	8"	—
6'2"	7"	—	7"	—
6'3"	7.5"	—	—	—

height. The one conspicuous deviation is a man, 5'3" tall, who favors a tall heterosexual partner.

Of the people who refer to specific heights (Table 1) those whose actual heights are known are of special interest to us. If we compare the actual sizes of these 77 males and 39 females (Tables 4 and 5) to their cross-sex ideals, we find 36 males (46 per cent) who desire above-average height differences favoring the male, 15 (20 per cent) who suggest below-average differences, 20 (26 per cent) average size differences, 4 (5 per cent) equal size, and 2 (3 per cent) differences in favor of the female. Twenty-eight fe-

TABLE 4
REFERENCE TO RESPONDENTS' OWN HEIGHT AND THAT OF THE CROSS-SEX IDEAL

REFERENCE TO RESPONDENTS' OWN HEIGHT AND THAT OF THE CROSS											
Nr	Males		Nr			Nr	Females		Nr		
1	5'2"	5'5"	4	5'10"	5'3"	1	5'0"	6'0"	2	5'5"	6'1"
3	5'5"	5'0"	2	5'10"	5'4"	1	5'0"	6'2"	2	5'5"	6'2"
1	5'5"	5'3"	2	5'10"	5'8"	1	5'2"	5'7"	1	5'6"	6'0"
2	5'5"	5'4"	1	5'10"	5'7"	1	5'2"	5'8"	1	5'6"	6'2"
1	5'5"	5'5"	2	5'10"	5'10"	1	5'2"	5'9"	1	5'7"	6'1"
3	5'6"	5'2"	1	5'10"	6'0"	1	5'2"	5'10"			
1	5'6"	5'3"				1	5'2"	5'11"			
4	5'7"	5'1"	3	5'11"	5'5"	1	5'2"	6'0"			
1	5'7"	5'4"	3	6'0"	5'4"	1	5'4"	5'8"			
4	5'8"	5'4"	4	6'0"	5'5"	1	5'3"	5'11"			
1	5'8"	5'5"	1	6'1"	5'3"	1	5'5"	5'9"			
1	5'9"	5'3"	2	6'1"	5'4"	3	5'5"	5'10"			
1	5'9"	5'4"	1	6'1"	5'5"	4	5'5"	5'11"			
2	5'9"	5'5"				3	5'5"	6'0"			
Total			50								

TABLE 5
REFERENCES TO RESPONDENTS' OWN HEIGHT, SAME-SEX IDEAL, AND CROSS-SEX IDEAL
Column A—actual height; S-S—same-sex ideal; C-S—Cross-sex ideal

Nr	Males			Nr	Males			Nr	Females		
	A	S-S	C-S		A	S-S	C-S		A	S-S	C-S
1	5'4"	5'10"	5'0"	1	5'10"	5'10"	5'5"	1	5'0"	5'5"	6'0"
2	5'5"	6'0"	5'2"	1	5'10"	6'0"	5'3"	1	5'1"	5'6"	5'10"
1	5'7"	5'10"	5'3"	2	5'19"	6'0"	5'4"	1	5'1"	5'5"	5'10"
1	5'7"	6'2"	5'4"	1	5'10"	6'0"	5'5"	2	5'2"	5'3"	5'6"
1	5'7"	5'9"	5'2"	1	5'10"	6'1"	5'3"	1	5'2"	5'4"	5'6"
1	5'8"	5'10"	5'3"	1	5'10"	6'2"	5'6"	1	5'3"	5'3"	6'0"
1	5'8"	5'11"	5'3"	1	5'11"	6'0"	5'6"	1	5'3"	5'6"	5'8"
2	5'8"	6'0"	5'4"	1	6'0"	6'2"	5'5"	1	5'3"	5'6"	5'9"
3	5'8"	6'1"	5'4"	1	6'0"	6'2"	5'8"	1	5'5"	5'2"	6'2"
1	5'8"	6'2"	5'4"	1	6'0"	6'3"	5'7"	1	5'7"	5'5"	6'1"
1	5'8"	6'2"	5'8"								
1	5'8"	6'2"	5'8"								
1	5'9"	5'10"	5'4"								
Total			27			11					

males (72 per cent) desire above-average differences favoring the male, 5 (13 per cent) below-average differences, and 6 (15 per cent) differences that coincide with the difference average.

E. COMMENTS ON HEIGHT

To explain the discrepancies between actual height differences and the desired height differences we turn to the comments accompanying the figures in the survey.

TABLE 6
REFERENCES TO SAME-SEX IDEAL AND CROSS-SEX IDEAL ONLY

Males			Females			Females		
Nr	S-S	C-S	Nr	S-S	C-S	Nr	S-S	C-S
2	5'10"	5'5"	1	5'0"	5'7"	2	5'5"	5'11"
1	5'10"	5'6"	1	5'1"	5'9"	1	5'5"	6'0"
3	5'11"	5'3"	1	5'2"	5'8"	2	5'5"	6'1"
2	5'11"	5'6"	1	5'3"	5'8"	2	5'6"	6'0"
1	6'0"	5'2"	1	5'3"	5'10"	1	5'7"	6'2"
1	6'0"	5'6"	3	5'4"	5'8"			
1	6'0"	5'7"	2	5'4"	6'0"			
2	6'2"	5'7"	2	5'5"	5'10"			
13						20		Total 33

Five people comment on height directly. Respondent 1, male, 6'0" states that men should be tall and adds, "All short men leave me with a feeling of disgust." R 2, male, 6'1", ideal female 5'7", says that he doesn't enjoy dancing with short girls. R 3, female, 5'10", after stating that men should be tall but females should not be tall, says, "In choosing a mate, height is a consideration, in friendship it is not." R 4, male, 5'4", argues that men should be tall "because a tall man commands more attention"; and R 5, female, 5'6", who depicts the female as "not tall," says, "The man must be tall because I am tall. But he must be completely dominant . . . he must be my master."

Both the emotional factor and the projection are evident in these brief remarks. Of greatest interest, however, are specific elements pointed at. R 4 identifies height with commanding attention, R 5 juxtaposes tallness and submission, thus equating height with dominance. Keeping these implications in mind we examine the comments on personality characteristics.

F. COMMENTS ON PERSONALITY

Respondent 4 (who remarks that tall men command more attention) describes the ideal male as a "good conversationalist." In picturing the female he says, "She must be short . . . she should give sincere attention to whoever

is talking." The theme of being listened to by the female occurs in the comments of four other men who either want to be taller than they are or desire above-average size differences.

R 6, male, college student, 5'7", sees the same-sex ideal in a man 6'1" tall and depicts the female as 5'4". He says, "The man should be able to play *all* sports. I can't." Continuing to tell about the advantages of tallness he mentions a friend who is tall and able to play all sports and is at the same time "a ladies' man" and "the life of the party."

A similar link between the tendency to increase the height difference beyond the usual and the man's feelings of inferiority is suggested by the remarks of R 7, male, height 5'9", ideal female 5'3". A girl as he would like her "should not be pretty. . . . If she is pretty, she shouldn't try to display it. She must be interested in what I am doing . . . and must see my good points." R 8, male, 5'10", ideal female 5'3", philosophizes: Women "are social animals that follow all fashions," and continues, "If she is gifted, she shouldn't make her fellow beings aware of it." He also prefers shy men and is annoyed by male "show-offs."

Feelings of inferiority require compensation as cushion and cover. In the group who desire above-average height differences there are some clear-cut expressions that indicate the attempts to ward off these feelings by emphasizing dominance and superiority in the heterosexual relationship. R 9, male, 6'1", ideal female 5'3", says, "I am the dominant type. I like her to be dependent on me at all times. I like to be waited on by women," and adds that he doesn't like his present girl friend because "she has a mind of her own." R 10, male, 5'8", same-sex ideal 5'10", female ideal 5'3", demands that the girl "must look up to him." But she must not "admire the man for his aggressiveness." The male should be fearless and ambitious. Here the consciousness of a lack is mixed with the desire to possess the devalued quality or to receive admiration equal to that its possession would provoke. R 11, male, 5'10", same-sex ideal 6'0", female ideal 5'5", asks for a partner "who is simple and doesn't ask too many questions." R 12, male, 5'5", same-sex ideal tall, female ideal 5'2", like R 7 excludes beautiful girls because they "are treacherous." The female, he says, "should keep her mouth shut on things she knows little about." Also, "she shouldn't shout." R 4, the man who needs a girl's sincere attention, wishes her to be "shy and not imposing. . . . She must like to be protected." In the opinion of R 13, male, 5'11", ideal female 5'5", the man "should lead the weaker sex," but "must be rough." "Rough, ruddy, and athletic" masculinity in itself is seen as a feature of superiority. Clad in these terms it is stressed by R 14, male, 5'8", same-sex

ideal 6'2", female ideal 5'4". He also mentions that the female "should listen to whatever you have to say without getting bored." R 15, male, 5'7", ideal female 5'1", stipulates that the male must be "forceful, self-centered, and desired by females." R 16, male, 5'9", same-sex ideal 5'10", ideal female 5'4", says, "She must be the quiet type and know when not to talk." The man "should have brains."

In some cases the need for superiority is expressed in the wish to be or appear more intelligent or better educated than the partner. Nine men state this desire in direct terms such as "Her mental qualifications should be medium," "her intelligence should not exceed mine," or "she should be of no more than average intelligence," whereas the same males expect the man to be "highly intelligent." Of these 9, 6 desire excessive height differences. Similarly is the difference in education emphasized. It is expressed four times in the group of 36 men who desire above-average differences; among the 191 men who constitute the rest of the sample it occurs seven times, that is, once in 9 men in the crucial group, once in 21 men in the rest.

In three cases economic differences are stressed. R 17, male, 5'7", same-sex ideal 5'10", female ideal 5'3", considers it necessary for the woman to have money, "but the male must be financially better off than she is"; R 18, male, 5'10", same-sex ideal 6'2", female ideal 5'6", says, "She should work, but her job must be lower than that of the husband. . . . She should always make her husband right." R 4 prefers a woman without money. Economic conditions are contrasted in this or a similar manner five times in the rest of the sample, whereas they occur, as mentioned, three times in the much smaller crucial group (relation 19:6).

Thus it seems evident that the need for superiority or for dominance is exceedingly often combined with the desire to be taller or, since it is impossible to change height except in daydreams, with the desire to increase the height difference in the heterosexual relationship.

The exaggeration of height relations consequently seems to serve as a symbol of the male's superiority whenever its maintenance appears precarious. While in some cases feelings of inferiority derive from the idea that one's actual height is inadequate—as is suggested when a man envisages the same-sex ideal taller than he is—another element enters when *tall* men desire specially small girls for partners. Tallness, of course, does not preclude feelings of inadequacy; these, however, are then more likely to refer to assumed or real intellectual, moral, or other shortcomings. Several of the tall men seem to cling to height as to a cherished and tested value. The emphasis on physical superiority is conspicuous in two men who disregard all the pos-

sible male traits except height, weight, and size of biceps, and in two others who mention only excellence in sports as a man's outstanding quality. R 19, male, 6'2", ideal female 5'2", considers prize fighters the prototype of the perfect male. He mentions that the man must not be afraid of anything, and says that he prefers a girl of average intelligence to one with high intelligence. As in R7 and R12, uneasiness about the power of the opposite sex becomes evident in R 20's response. A male, 6'1", female ideal 5'3", he elaborates: "I hate women who are catty or narrow-minded. A girl should not act on impulse and emotion. . . . She should not use male slang. . . . She should not be feminine to excess. She shouldn't be a helpless woman, but not too independent. I hate domineering women." In the same group, R 21, male, 6'1", ideal female 5'4", remarks, "She should not think of seducing a fellow."

The need for superiority is, of course, not limited to those who express their desire to exceed their mates conspicuously in size. It is, however, interesting to note that out of 77 males who refer to actual height and the cross-sex ideal with or without mentioning the height of the same-sex ideal, 35 make pertinent comments; and 26 of them (74 per cent) who desire above-average differences reveal attitudes such as those mentioned, whereas only 9 (26 per cent) display these attitudes without desiring disproportionate size differences.

G. EQUAL SIZE

It may be worth while to compare briefly with this attitude the remarks of men who envisage their ideal in females of equal size. Of five such men only two make significant comments. One, R 22, 5'8", ideal female 5'8", says, "Her intelligence should be higher than mine. She should have more than average sex desire." R 23, 5'6", describes the desirable female as "slightly smaller than myself" and adds, "The man should be more stable than the female . . . he should not have bulging muscles, since heavy muscles on a man look terrible." But altogether "looks are not important in a man, intelligence is. I wish I were as clever as my wife." While feelings of inferiority are evidence, these men obviously renounce dominance over the female, and correspondingly its symbol, excessive height difference.

H. THE FEMALES

For the female it is more difficult to identify superiority with her own tallness. The girl who chooses a partner smaller than herself offends the social norm and taste. Not only would such a proclivity make it difficult for her

to find a husband, but she is also conscious of the fact that being picked by a smaller man reflects on her desirability.

Consequently the female who in one form or the other protests against her rôle or the inferior status of her sex can merely—if she perceives height as symbolical—reduce the difference in height between herself and the partner. Again, the motivation is expressed in terms of attraction, indifference, or aversion. The uncomfortable feeling of being "overtowered" by the male is expressed in this or similar phrases by five females, who nevertheless want tall males. Of those who are more explicit R 24 distinguishes between the general ideal and the man she might marry. The latter, she says, should not be "too tall" nor should he be "too intelligent." Her ideal female is "not a housewife." R 25, 5'1", same-sex ideal 5'6", ideal male 5'10", says, "The male should be able to admit mistakes and to apologize. He must not be domineering. . . . The female should be a good conversationalist and able to get a good audience." R 26, same-sex ideal 5'5", male ideal 5'11": "No male supremacy for me." Protest against the female sex rôle characterizes the remarks of R 27, 5'2", same-sex ideal 5'4", male ideal 5'6": "The man should have sex experience. . . . I refuse to be used as a guinea pig." R 28 reveals a conflict between submission and the desire for equality; 5'3" tall, same-sex ideal 5'6", male ideal 5'8", she says, "He must be someone to whom I can feel slightly inferior. . . . The female should be equal to the husband, but allowed to be foolish on occasion."

I. ABOVE-AVERAGE HEIGHT DIFFERENCES

Opposite these females stand those who prefer far-above average height differences, some of them visualizing the ideal height of the female below their actual height, some of them looking for disproportionately tall men. R 29, 5'5", same-sex ideal 5'2", male ideal 6'2", says that the man "must be an athlete and a stand-out personality." R 30, 5'3", is content with her height but describes the male as 6'0" and says, "He should be masterful, robust, and strong. He must not let her step on him. He must put up with her temperament." R 31, 5'5", who wants the man to be "very tall," stipulates that he must have college education, whereas the girl should not have college education. He must be a "leader . . . someone whom nobody can tell what to do or say and has entirely a mind of his own."

A comparison between difference coefficients and the females' comments on personality shows that the tendency to reduce the height difference between the sexes below the average is in all cases concomitant to expressions indicating the need for ascendancy or protest against the female rôle. The

tendency to increase height difference above the average is in all cases except one combined with expressions indicating the desire for submission and protection.

J. MALES WHO DESIRE TALLER FEMALES

One group remains to be discussed, three men who favor women taller than themselves. R 32 in the interview states that he is interested only in tall women. "She must look like a queen," he says, specifying by gestures a Junoesque figure. Self-assertive, sarcastic, self-educated above his occupational status of waiter he does not think much of the mental capabilities of women and, elaborating, states that a man must show them immediately who is the master. He boasts of his skill in love, his recklessness, and his boundless potency.

R 33, a music student, 5'10" desires a girl of height 6'0". He states that this woman must weigh 135 pounds, be blond, have blue eyes, and be a girl "whom I can walk down the street with and have the entire male populace aroused. She would appear as a luscious, scintillating, and yet dignified individual. To put your arms around her would be like embracing a forbidden Greek goddess. My heart would beat like an angry storm, the external world would fade, my every thought and desire would melt as crystals of dew on a spring morn."

While we can only surmise from the accounts of girls who imagine themselves overtowered by the beloved male that they may be motivated by the desire to re-establish symbolically the child-adult relationship, the poetic outburst produced by R 33 indicates more definitely the influence of the parental image. Not only is the ideal taller than he is, she also rouses the envy of all his brethren. The thrill of putting his arms around her has the flavor of the forbidden, which makes his excitement appear like an angry storm.

K. CONCLUSION

The attempt was made to link the attraction to a disproportionately short or tall partner to certain personality features. Height relations, while socially prescribed, are emotionally cathected and are drawn upon in mate selection to maintain or to regain a precarious emotional security. Since not all persons appear to be equally sensitive in this respect, it is suggested that attention is focused on size, that is to say that disproportionately small or disproportionately tall partners become particularly attractive, if during his development an individual related his frustrations or his successes to his height. Among men most strongly affected seem to be first those who, out-

sized by significant competitors, try to outsize at least their women; and secondly those who, feeling inferior in other respects, try to surpass the competitors at least physically. While some of these men tend to quiet feelings of inadequacy by emphasizing their willpower, dominance, intellectual distance, sexual strength, and protectiveness, they frequently seek at the same time symbolical expression for their superiority by increasing the height differences between themselves and the love partner or spouse beyond the usual.

Conversely, men who renounce dominance or accept the equality of the sexes if not the superiority of the female sex are inclined to find females of equal or nearly equal height attractive.

In the female's emotional reaction to height the processes appear reversed. The tendency to diminish the height difference frequently coincides with the girl's protest against her sex rôle and against male dominance. The desire for submission and subordination, for protection and guidance is often expressed together with and thus possibly through the wish to be smaller or, since the wish is ineffectual, by the attempt to increase the height difference in mate selection. This tendency, which in some instances may be caused by the unconscious equating of childhood with smallness and either responsibility or parent with tallness, accounts for some females' predilection for disproportionately tall men; but it may also account for the male's proclivity for females taller than himself. A similar choice may be caused by sado-masochistic inclinations to which the tall woman may become the more appropriate challenge.

The conclusions drawn from this survey reveal deviating height preferences as a function of personality needs. Of course, the need for superiority, submission, or protest is not always expressed in such a preference. Height, as appearance altogether, may be of little significance to some persons. Yet, even though among the respondents in our study who choose mates in accordance with the compromise averages some express similar needs, they are vastly outnumbered by those in whose wishful thinking the satisfaction of these needs is combined with the predilection that disagrees with the norm.

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A STUDY OF SOCIAL STATUS DIFFERENTIATION IN THE CLASSROOM BEHAVIOR OF NINETEEN THIRD GRADE TEACHERS*

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A. INTRODUCTION

A number of statements have appeared in recent literature to the effect that teachers accord better treatment to pupils of high social status than to pupils of low social status. Thus, in a well-known treatise dealing with the impact of social stratification upon education, Warner, Havighurst, and Loeb (12) say that teachers "exhibit a good deal of unconscious discrimination against lower class children." Similar statements have been made by Warner, Meeker, and Eells (13), Havighurst (6), Davis and Dollard (5), Neugarten (10), Hughes (10), and Hollingshead (9).

While several writers have claimed that teachers deal differently with their high than with their low status pupils, only one major study bearing upon the matter has been made. Clifton (4) selected 25 second grade classrooms from three different socio-economic areas in Oakland, California. Using an adaptation of the Anderson-Brewer "Dominative-Socially Integrative" observation scheme (2), she recorded teacher behavior in each classroom. She found that, on the average, teachers of the three socio-economic areas (Waterfront, Central and Hill) showed close similarity in their classroom contacts with their pupils. However, Hill area teachers, i.e., teachers in the area of highest status level, were found to have slightly fewer conflict contacts and slightly more "highly integrative" contacts with individual pupils than did teachers in the other areas.

Because of the importance of teacher-pupil relationships from the standpoint of pupil adjustment, status discrimination in such relationships, if it exists, is especially invidious. The present study was designed to provide further information as to whether teachers favor their high status children.

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More specifically, the problem dealt with is whether third-grade teachers tend, either consciously or unconsciously, to have different amounts and kinds of classroom contacts with high than with low status pupils.

B. DEFINITION OF THE PROBLEM

1. *The Hypotheses*

The hypotheses considered were as follows:

1. The amount of attention a pupil receives from the teacher varies directly with pupil social status.
2. The proportion of teacher contacts with pupils which are conflict contacts varies inversely with pupil social status.
3. The proportion of teacher contacts in which the teacher shows a high degree of respect for pupil goals varies directly with pupil social status.
4. The "mental hygiene" value of teacher contacts with pupils varies directly with pupil social status.
5. Teachers differ in respect to the degree to which the quantity and quality of their classroom contacts are related to pupil social status.

Each of these hypotheses was tested in a preliminary way on the basis of data from 19 third grade classrooms.

2. *Definitions and Assumptions*

Since no one is certain of the nature of the status structure of American communities in general, and since the writer had no data on the basis of which to analyze the social structure of the specific communities in which the present investigation was conducted, the definitions and procedures used in the present study were necessarily based upon assumptions with respect to social status and social classes. For the most part, these assumptions are the Warner concepts of the American status and class system as they apply to Midwestern communities.

While the Warner framework was generally adhered to, some departure was made from it. Four of the hypotheses were considered both under the assumption that status is continuous as well as under the assumption that it is discontinuous. The latter assumption is that there is a social class system in the communities in which the study was conducted and that the classes within this system are similar to those described by Warner and his co-workers. The assumption of continuity implies that social classes exist only as arbitrary divisions of a continuous status distribution.

In keeping with what has been said above, *social status* is used here in the sense in which it is employed by Warner and his associates, i.e., it refers to

position in the social prestige hierarchy of a community. A social class, by Warner's definition, is a group of people who are all placed by those who know them at about the same level on the social scale (6, p. 116). The social classes, so conceived, form a single hierarchy of social status strata. The terms "middle class" and "lower class" refer to the lowest two of the three major status strata in the Warner class system.

In the present study, the social status and class of a child was considered to be that of the family with which he was most closely identified, whether his family was that of his parents, grandparents, or of other persons. A "lower class child" was thus one who was identified with a lower class family or adult, and a "middle class child" one who was identified with a middle class parent or adult.

The concept of "teacher contacts" was taken directly from Anderson and Brewer (2). In their studies of teachers' classroom personalities, they have defined a "contact" as any behavior of the teacher which is directed toward one or more of her pupils. Anderson and Brewer distinguish between an individual contact, which is a teacher contact with one pupil, and a group contact, which is a teacher contact with two or more pupils. Only individual contacts were studied in the present investigation.

The Anderson-Brewer observation scheme arranges teacher behavior along a scale of domination-integration. "Dominative contacts" are defined as contacts characterized by teacher pressure upon the pupil. In these contacts, the teacher retains partial or complete control over the child's activities. In "integrative" contacts, the teacher is trying to find the interests of the child, or is making suggestions which the child is free to accept or decline, or, in one way or another, is reacting favorably toward the child's expressed interests.

Both dominative (*D*) and integrative (*I*) contacts are subdivided into less inclusive categories. Dominative contacts are subdivided into (1) "domination with evidence of conflict," or *DC* contacts, (2) "domination with no evidence of working together," or *DN* contacts, and (3) "domination with evidence of working together," or *DT* contacts. Integrative contacts are subdivided into (1) "integration with no evidence of working together," or *IN* contacts, and (2) "integration with evidence of working together," or *IT* contacts.

This classification of teacher behavior is based upon assumptions as to the kinds of contacts which are desirable and the kinds which are undesirable from the standpoint of pupil adjustment. It is assumed that dominative contacts, and particularly those marked by conflict (*DC* contacts) are of low mental hygiene value; and that integrative contacts, especially the *IT* con-

tacts, are of high hygiene value. High I/D and IT/DC ratios are assumed to be indicative of teacher behavior contributing to pupil adjustment (see 1, pp. 31-32).

In the present study, each aspect of teacher behavior involved in the hypotheses was equated to one or more of the Anderson-Brewer categories of teacher contacts or to one or more ratios of such contacts. Table 1 indicates the teacher behavior variables dealt with in the hypotheses and the Anderson-Brewer contacts or contact ratios with which they were equated.

TABLE 1
FOR EACH HYPOTHESIS, THE TEACHER BEHAVIOR VARIABLE INVOLVED AND THE ANDERSON-BREWER CONTACTS OR CONTACT RATIOS EQUATED TO THIS VARIABLE

Hypothesis	Teacher behavior variable	Anderson-Brewer contact index
1.	Amount of attention given child	Number of teacher contacts involving child
2.	Tendency to have conflict with pupils	Proportion of contacts which are in the category "Domination with conflict"
3.	Tendency to show high degree of respect for pupil goals	Proportion of contacts which are in the category "Integration with evidence of working together"
4.	"Mental hygiene value" of teacher contacts with pupil	Ratio of "Integrative" to "Dominative" contacts; also, ratio of "Integrative with evidence of working together" to "Dominative with conflict"
5.	All of the above	All of the above except ratios of "Integrative with evidence of working together" to "Dominative with conflict"

The first hypothesis has to do with *quantity* of contacts and the index of this was simply contact frequency. The other four hypotheses are concerned with *quality* of contacts. Here the contact indices were proportions or ratios rather than simple frequencies. Proportions or ratios were used instead of raw frequencies because the effect upon pupils of any given number of contacts of a given type is probably relative to the total number of contacts or to the number of contacts of one or more other types.

C. THE MEASURES

1. *The Measure of Teachers' Classroom Behavior*

The procedure for observing and recording teacher contacts was essentially the Anderson-Clifton simplification of the Anderson-Brewer scheme. Contacts were recorded only by major category, i.e., only as DC , DN , DI ,

IN, or *IT*, and by the pupil involved. The investigator tabulated five hours of observations in each of the 19 third grade classrooms included in the study. In most classrooms, all of the observations were completed over a period of two school days. Because differences in teacher contacts with pupils of different status levels are likely to be most evident in individual contacts, no group contacts were recorded.

The reliability of the investigators' recording of teacher-pupil contacts was determined by comparing the observational tallies of the investigator with those of a second trained observer. Data on observer consistency were collected in two classrooms. The indices used were "percentages of agreement."² Limitations of space do not permit presentation of all the obtained percentages of agreement, but it can be said that, in general, the observer consistency was much the same as that obtained by other researchers who have used the Anderson-Brewer scheme of tallying teacher behavior. For example, when all contacts were considered to be in agreement which were recorded in the same major category of teacher behavior (*DC*, *DN*, etc.), the percentages of agreement generally exceeded 90 for each category.

A question related to reliability is that of whether teachers display consistency from one time to another in the way they deal with their pupils. If teachers do show a fairly high degree of consistency, then one may assume that the results obtained for individual teachers are not strongly determined by the choice of some dates of observation rather than others. Data are available which tend to show that teachers are fairly consistent in their contacts with individual pupils. Eleven teachers were taken at random from among the 19 in the present study. For each of the teachers the "dominative with conflict" (*DC*), "dominative" (*D*), "integrative with evidence of working together" (*IT*), "integrative" (*I*), and total (*S*) contacts with each pupil were determined for the first half of the observation period and then for the second half. For each classroom and for each of the five categories, the "first-half contacts" were correlated with the "second-half contacts." The resulting correlations are shown in Table 2. Systematic errors in tallying observations would tend to increase these coefficients. On the other hand, variable errors would serve to attenuate them. While the data are not such that one can determine the relative importance of these effects, most of the

²Percentages of agreement are computed by dividing twice the number of tallies in agreement by the sum of the tallies for the two observers. A more complete description as well as an evaluation of the method are found in a paper by Arrington (3).

TABLE 2
FOR EACH OF ELEVEN CLASSROOMS, CORRELATIONS OF TEACHER CONTACTS DURING THE
FIRST 150 MINUTES OF OBSERVATION WITH CONTACTS DURING
SECOND 150 MINUTES OF OBSERVATION

Class- room	Number of pupils	Conflict contacts (DC)	Dominative contacts (D)	Contact category		All contacts (S)
				Highly integrative contacts (IT)	Integrative contacts (I)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	20	.64	.48	.29	.29	.92
2	22	.69	.55	.43	.49	.71
4	35	.78	.65	.54	.50	.69
7	31	.38	.43	.50	.58	.47
8	34	.42	.32	.37	.26	.35
9	24	.62	.61	.67	.60	.70
10	31	.65	.60	.66	.69	.80
11	32	.56	.32	.28	.38	.54
14	28	.69	.19	.29	.32	.29
16	23	.45	.46	.40	.45	.58
18	23	.37	.29	.66	.59	.60
Median <i>r</i>		.62	.46	.43	.49	.60

obtained correlations seem to point to an appreciable degree of consistency in the way teachers deal with individual pupils.³

2. *The Measure of Pupils' Social Status*

The Index of Status Characteristics, a scale constructed and validated by Warner, Meeker, and Eells (13), was used in this study to measure pupils' status positions. The scale, as used here, has three items: (a) Area Lived In, (b) House type, and (c) Occupation. Each item consists of a seven-point rating scale. In obtaining an *ISC* for a given individual, one obtains the three ratings, multiplies each rating by its appropriate weight, and sums the weighted ratings. Weights for the items in the scale as used here are 5, 4, and 3, respectively. Scores have a maximum range of 12 to 84. A low *ISC* represents high status; a high *ISC*, low status.

The reliabilities of the House-Type and Occupation Items were estimated by comparison of independent ratings of the writer and a second person. The second rater studied the house-typing scale and practiced with the writer over a period of several days. The aim was not simply to reach agreement with each other but also agreement with the intent of Warner

³The reader will note that except for total contacts, the analysis which ensues is concerned with ratios of contacts rather than with raw frequencies. However, evidence of consistency of raw frequencies does provide some evidence of consistency in the ratios as well.

and his co-workers. After the period of practice, 85 houses were rated independently by both raters. In 73 (or 85 per cent) of the cases, the ratings assigned were the same; in the other 12 cases, the independent ratings differed by one point on the seven-point scale.

The degree of agreement between independent ratings of occupations was approximately the same as that for house-type. The occupations of 135 parents were independently rated by the writer and a second person. In 115 (or 85 per cent) of these cases the paired ratings were the same; in 19 (or 14 per cent) of the cases, the paired ratings differed by one point on the seven-point scale; and in only one case did the paired ratings differ by two scale points.

Most of the dwelling area ratings were obtained in each of the two communities involved by having three local residents outline, on detailed maps, areas corresponding to each point on the dwelling area scale. These residents were chosen because of their thorough knowledge of their respective communities. Of the 472 cases for which dwelling area ratings were obtained from these persons, 179 (or 38 per cent) were given the same rating by all three raters. In 222 (or 47 per cent) of the cases two of the three ratings were in agreement while the third rating differed from the others by one scale point. In only 14 (or 3 per cent) of the cases did ratings differ by as much as three points on the rating scale. In these 14 cases, as well as the cases of the 53 pupils who lived in public housing or in areas a considerable distance outside city limits, the final dwelling area ratings were made by the investigator on the basis of first-hand inspection.

3. *Measures of Achievement*

In the analysis of the data, consideration was given to the influence of the achievement factor upon the results. To make this possible, achievement measures were obtained for almost all of the pupils. For 17 of the classrooms, these achievement measures are scores on the reading subtest of the Progressive Achievement Test.⁴ For the other two classrooms, they are scores on the reading subtest of the Metropolitan Achievement Test.⁵

Reading scores, rather than total achievement scores, were used largely because they were much more readily obtainable than total scores. Also, for the nine classrooms of pupils for whom both total and reading achievement

⁴Tiegs, E. W., & Clark, W. *Progressive Achievement Tests—Primary Battery*. Los Angeles: California Test Bureau, 1943.

⁵Hildreth, G. *Metropolitan Achievement Tests, Primary II Battery*. Yonkers, New York: World Book, 1946.

scores on the Progressive Achievement Test were available, high correlations were found between the two scores. These correlations, calculated separately for each classroom, ranged from .77 to .98 and had a median of .89.

D. SOURCES OF DATA

The data used in the study were collected in two central Illinois communities having populations of between 50,000 and 75,000.

Selection of these communities was largely incidental to the location of classrooms with teachers and pupils having some specified characteristics. The criteria used in the selection of classrooms were that any classroom included should: (a) be a third grade classroom with at least 25 pupils, (b) consist entirely or almost entirely of children of the white race and of Old American stock, (c) include pupils varying considerably in social status, (d) receive all instruction, with the possible exceptions of music and drawing, from the regular teacher, and (e) have a female teacher of "middle class" status.

The study was made in classrooms of a single grade level in order to roughly control the pupil age factor. The third grade level, rather than some other, was chosen chiefly for a practical reason, namely that in exploratory observations using the Anderson-Brewer scheme, the writer found that the frequency of teacher contacts in third grade classrooms is quite high, yet not so high as to prevent recording of contacts with acceptable reliability. Teachers' individual contacts in second grade classes seemed more difficult to record with accuracy. At grade levels above the third, individual contacts could be recorded with considerable accuracy, but their frequency was relatively low. The third grade level appeared to be the best for obtaining the highest frequency of tallies consistent with the requirement of observer reliability.

Nineteen classrooms were selected for observation. Hereafter these classrooms will be referred to by numbers ranging from 1 to 19. Classrooms 1 through 13 are in one community; classrooms designated by the numbers 14-19 are in the second community. Each of the 19 teachers is referred to by the same number assigned the classroom in which she was teaching.

All of the teachers whose classroom behavior was studied are women and, in the Warner system, were clearly of middle class status and expressed middle class values. In respect to age, the teachers ranged from 21 to 64 years. The mean age was 37. Fourteen of the teachers had four or nearly four years of college training. None of the teachers had less than one year of teaching experience, and one teacher had taught in the elementary school

for over 43 years. For the 19 teachers the average number of years of experience was almost 15 years. Eleven of the teachers were married, eight unmarried.

A total of 532 pupils were involved in this study. They were all of Old American ethnic stock. The number of pupils per classroom varied from 19 to 35. In each classroom some of the pupils were of middle class status and some were of lower class status.

E. COLLECTION OF DATA

1. *The Order in Which the Data Were Collected*

After the classrooms had been selected by methods described above, the following data were collected in this order: (a) observation data; (b) sex, age, and achievement test data for the pupils; (c) social status of pupils; (d) personal data on teachers.

The observation data were collected before pupil status data as a means of preventing bias in the interpretation and tallying of teacher contacts. Otherwise, the order of data collection was largely decided on the basis of convenience.

No clear-cut evidence is available as to whether the order of collection of observational and status data was a sufficient safeguard against observer bias. However, the investigator made a conscious effort to be objective in the interpretation and recording of teacher contacts. Also, an examination of the reliability data based on the simultaneous recording of two independent observers tends to indicate that observer bias has not greatly affected the teacher behavior data. In collecting the reliability data, Observer X (the writer) knew the purposes of the study while Observer Y did not. If Observer X had been more biased than Observer Y, the effect would have been to lower the percentages of agreement, particularly those for the recording of individual contacts with pupils of different status groups. Since the obtained percentages of agreement were actually quite high, there is some reason to believe that the investigator's interpretation of contacts was affected little, if any, by such clues of pupils' social status as dress, manners, and language.

2. *Collection of Observation Data*

Observations for two of the 19 classrooms were made during May, 1949. The rest of the observations were made during the period from October to February, 1949-1950. In most classrooms, the five hours of observation were completed in two days, but, in a few cases, the investigator found it

necessary to return a third or even a fourth day. Each teacher was given some, but not complete, information regarding the study. Knowledge of the exact nature of the variable under observation was withheld in order to avoid the possibility that it would cause the teacher to alter her usual pattern of classroom behavior. The teacher was told that the observer wished to see the classroom under normal conditions and would not be interested in special demonstrations of teaching methods or special pupil activities. Assurances were given that the data would not be used in any way that might affect the teacher's personal or professional status or which might have an unfavorable effect upon the pupils.

An attempt was made to equate the observation samples from the various classrooms in respect to the times of the school day at which they were obtained. Also, in each classroom the investigator tried to include observations of teacher behavior in each area of subject matter (reading, arithmetic, etc.).

3. Collection of Status Data

The *ISC's* were derived by methods outlined by Warner, Meeker, and Eells in *Social Class in America* (13). Occupational data obtained from school records were checked against information given by teachers and principals and against entries in city directories. Each house in which one or more of the pupils were living was located and rated. Finally, "Area Lived In" ratings were secured by methods already described.

After observational and pupil data had been tabulated by pupil and by classroom, there remained the task of determining the cutting point or points in the *ISC* values which would most accurately divide pupils according to class membership. The writer did not find feasible any elaborate study to determine exact cutting points. However, each teacher was interviewed to obtain information concerning the social participations of parents falling close to the cutting points which Warner, Meeker, and Eells had established for Jonesville (12). Information thus obtained led the writer to set the *ISC* ranges for the social classes in both communities as follows:

Upper class	12-16
Middle class	18-49
Upper lower class	50-69
Lower lower class	69-84

These ranges are admittedly only approximate. A more thorough interviewing study would probably have given somewhat different cutting points.

The achievement tests used in the study were in every case administered

by the respective teachers. In 9 of the 19 classrooms, the writer supplied the tests and discussed with the teachers the proper procedures for their administration.

F. ANALYSIS AND RESULTS

1. *Method of Testing the First Four Hypotheses Under the Assumption of the Warner Class System*

The first step in the analysis of the data was to divide the pupils in each classroom into lower and middle class groups. Then, for each of the first four hypotheses, the appropriate teacher contact indices were computed separately for middle and for lower class pupils in each classroom. In testing a given hypothesis, the procedure was as follows: (a) For each classroom, the magnitude of the appropriate contact index computed for contacts with middle class pupils was compared with the magnitude of the corresponding index for contacts with lower class pupils. (b) Each of the nineteen differences, so obtained, was designated a positive or a negative difference depending upon whether or not it was in the direction expected on the basis of the hypothesis. (c) Reference was made to tables of the binomial distribution to determine whether the obtained number of positive differences would occur less than five per cent of the time by chance alone. Where this was the case, the hypothesis being tested was considered to be supported by the data.

The procedure just described may be clarified by illustrating its application in testing Hypothesis 1. This hypothesis is that in third grade classrooms, the amount of attention a pupil receives from the teacher varies directly with pupil social status. Assuming the Warner status structure, this hypothesis may be translated as follows: Third grade teachers tend to give more attention to their middle class pupils than to their lower class pupils. In analyzing the data bearing upon this hypothesis, the mean frequency of all contacts involving middle class pupils and the mean frequency of all contacts involving lower class pupils were computed separately for each classroom in which observations were made. It was found that in only 10 classrooms did the mean frequency of contacts involving middle class pupils exceed that for lower class pupils. Tables of the binomial distribution indicate that such a result would occur 50 per cent of the time in samples of 19 cases when the probability of success in any one case is one-half. Thus the data could not be said to support the hypothesis that middle class pupils tend to receive more attention than lower class pupils.

A second test of Hypothesis 1 has been made using *median* frequencies of contacts.

Hypothesis 1 has to do with *quantity* of contacts. Hypotheses 2, 3, and 4, on the other hand, involve consideration of the quality of contacts. The first step in testing these hypotheses was to compute the DC/S , IT/S , I/D and IT/DC ratios for teachers' contacts with middle and lower class pupils. From this point, the procedure for testing Hypotheses 2, 3, and 4 was the same as that used to test Hypothesis 1.

Hereafter, an analysis wherein teacher contacts involving pupils of a given classroom status group are summed in the computation of contact indices will be referred to as a Type *A* analysis. An analysis by medians will be referred to as a Type *B* analysis. Neither type of analysis determines the degree of teachers' differentiation between pupils of different social class levels. They aim simply to ascertain the direction of differentiation.

2. *Method of Testing the First Four Hypotheses Under the Assumption of Continuity of Status*

To test Hypotheses 1-4 under the assumption of continuity of status, product-moment correlations between teacher behavior indices and pupil social status are computed separately for each classroom. For each hypothesis, the number of classrooms in which the direction of the correlation is that predicted on the basis of the hypothesis is then determined. The null hypothesis in each case is that there is no tendency for the particular teacher behavior variable to vary with pupil social status. Under the null hypotheses, the chances are even that, for a particular classroom, the obtained direction of correlation will be that expected on the basis of the hypothesis being tested. If, under the null hypothesis, the obtained number of correlations in the predicted direction would occur less than five per cent of the time by chance alone, the null hypothesis is rejected. In this event, the data are said to support the hypothesis being tested.

The analyses assuming continuity of status and involving the computation of product-moment correlation coefficients will hereafter be referred to as analyses of Type *C*.

3. *Statistical Results for the First Four Hypotheses*

A summary of the principal statistical results bearing upon the first four hypotheses are presented in Tables 3 and 4. These tables show for each teacher contact index and for each type of analysis, the number of classrooms in which the teacher was found to "favor" high status pupils over

low status pupils. It also shows the significance level of each such result. In addition to results of analyses in which both boys and girls were involved, findings are presented which are based upon analyses made separately for boys and for girls.

TABLE 3

FOR EACH TEACHER CONTACT INDEX: (1) THE NUMBER OF CLASSROOMS IN WHICH THE TEACHER WAS FOUND TO FAVOR HIGH STATUS OVER LOW STATUS PUPILS, AND (2) THE SIGNIFICANCE LEVEL OF EACH SUCH RESULT

Teacher contact index (1)	Total number of classrooms—19					
	Analysis A* No. of classrooms (2)	Significance level (3)	Analysis B** No. of classrooms (4)	Significance level (5)	Analysis C*** No. of classrooms (6)	Significance level (7)
Frequencies of contacts	10	50%	11	32%	9	68%
DC/S Ratio	12	18	11	32	12	18
IT/S Ratio	14	3	14	3	13	8
I/D Ratio	16	0.2	14	3	15	1
IT/DC Ratio	15	1	13	8	—	—

*Type A analyses are those in which teacher contacts involving pupils of a given classroom status group were summed in the computation of the teacher contact indices. Status is considered to be discontinuous.

**Type B analyses are the analyses by medians. This type of analysis involved (a) the computation of separate teacher contact indices for each pupil in each classroom, and (b) the determination of the medians of these indices for each status group in each classroom. Status is considered to be discontinuous.

***Analyses of Type C are based upon correlations of pupil status and the teacher contact indices. Status is here assumed to be continuous.

The first rows of Tables 3 and 4 show that none of the results involving frequencies of contacts are significantly different from those expected on the basis of chance. This indicates that regardless of whether or not the sex factor be controlled, the data are consistent with null hypothesis that there is no relationship between "pupil social status" and "number of contacts received by the pupil."

In the second rows of Tables 3 and 4 are the statistical results which provide a basis for testing Hypothesis 2. The analyses involving both boys and girls fail to support this hypothesis that teachers tend more strongly toward conflict with low than with high status pupils. However, more weight probably should be given to the results in which the sex factor is controlled than to those in which it is not controlled, since effects of extraneous variables prevent one from generalizing results beyond the specific classrooms studied. When the sex factor is controlled, the findings lend support to Hypothesis 2. Both analyses for only girls yield results which are significant at the 5 per cent level. The Analysis A result for boys is statistically significant, while

TABLE 4

FOR EACH TEACHER CONTACT INDEX: (1) THE NUMBER OF CLASSROOMS IN WHICH THE TEACHER WAS FOUND TO FAVOR HIGH STATUS BOYS OR GIRLS OVER LOW STATUS BOYS OR GIRLS, AND (2) THE SIGNIFICANCE LEVEL OF EACH SUCH RESULT. TOTAL NUMBER OF CLASSROOMS:
FOR BOYS, 19; FOR GIRLS, 18

Teacher contact index (1)	Boys				Girls			
	Analysis A*		Analysis B**		Analysis A*		Analysis B**	
	No. of classrooms (2)	Significance level (3)	No. of classrooms (4)	Significance level (5)	No. of classrooms (6)	Significance level (7)	No. of classrooms (8)	Significance level (9)
Frequencies of contacts	9	68%	10	50%	11	24%	11	24%
DC/S Ratio	14	3	11	32	13	5	13	5
IT/S Ratio	13	8	13	8	12	12	15	0.4
I/D Ratio	12	18	14	3	11	24	12	12
IT/DC Ratio	14	3	14	3	12	12	13	5

*Type A analyses are those in which teacher contacts involving pupils of a given classroom status group were summed in the computation of the teacher contact indices. Status is considered to be discontinuous.

**Type B analyses are the analyses by medians. This type of analysis involved (a) the computation of separate teacher contact indices for each pupil in each classroom, and (b) the determination of the medians of these indices for each status group in each classroom. Status is considered to be discontinuous.

that using median ratios is not. The discrepancy between the two analyses for boys may be due to a tendency for teachers to have a relatively large number of conflict contacts with a few lower class boys, but no unusual number with most boys of this status level.

The evidence for the hypotheses that teachers tend to show respect less often for the goals of lower class than of middle class children appears strong when only the analyses for both boys and girls are considered. Results of these analyses are given in the third rows of Tables 3 and 4. Both the Type *A* and Type *B* analyses give results which are significant at the 3 per cent level, while the Type *C* (correlational) analysis yields results significant at the 8 per cent level. When the sex factor is controlled, results are less conclusive. Neither of the analyses for boys, and only one of the two analyses for girls, gives significant results.

In Rows 4 and 5 of Tables 3 and 4 are shown the findings which provide a basis for testing the hypothesis (Hypothesis 4) that the "mental hygiene value" of teacher behavior toward high status pupils is higher than that of teacher behavior toward low status pupils. Actually the hypotheses (2 and 3) tested by means of *DC/S* and *IT/S* ratios have implications with respect to whether the behavior of teachers toward high status pupils is more desirable from the standpoint of mental hygiene than the teacher behavior toward pupils of lower social rating. However, the indices advocated by Anderson and Brewer for determining the "mental hygiene value" of teacher contacts with a pupil or a group of pupils are the *I/D* and *IT/DC* ratios. The *I/D* ratio is the ratio of all integrative contacts to all dominative contacts. The *IT/DC* ratio is the ratio of the most highly integrative contacts to the most highly dominative contacts.

Entries in Rows 4 and 5 of Table 3 strongly indicate that, at least in the classrooms studied, the "mental hygiene value" of teachers' contacts is higher for high than for low status pupils. With the sex factor uncontrolled, all three analyses (*A*, *B*, and *C*) yield statistically significant results when the criterion of mental hygiene value is *I/D* ratio. When the criterion is *IT/DC* ratio, one of the two analyses indicates statistical significance and the other closely approaches it.

When the sex factor is controlled, the results are somewhat different. For *I/D* ratios, only the analysis using medians, Analysis *B*, gives a significant result where boys are concerned; neither analysis gives significant results for girls. However, for *IT/DC* ratios, both results for boys, and one of the two for girls are statistically significant.

Although, for reasons previously given, achievement has not been controlled in the preceding analysis, a study was made to determine how the above results were affected by achievement differences. This was done by partialling out achievement test scores from the correlations between social status indices and contact indices. The results of this analysis suggested these tentative hypotheses:

1. Third grade teachers' behavior is differentiated *quantitatively* on the basis of achievement, low achievers tending to receive more contacts than high achievers.

2. Third grade teachers' behavior toward pupils is *differentiated qualitatively* on the bases of achievement, high achievers being "favored" over low achievers.

3. Failure to find that teachers tend to have more contacts with high than with low status pupils is due to the tendency of the teachers to concentrate their efforts on low achievers rather than on high achievers.

4. The found qualitative differentiation of teachers' behavior on the basis of status is simply incidental to the tendency of the teachers to "favor" pupils of high achievement over pupils of low achievement.

4. *Analysis and Results for the Fifth Hypothesis*

The analysis employed for testing Hypothesis 5, the hypothesis that teachers differ in respect to the degrees of differentiation they exhibit in their behavior toward pupils of different status levels, involves no precise statistical tests. It consists largely of an inspection of the found differences between indices of teacher behavior toward middle and lower class pupils. The analysis assumes discontinuity in status.

Table 5 shows for each teacher the differences in the contact indices computed separately for middle and lower class pupils. These differences were derived by subtracting the mean contact indices for lower class pupils from the corresponding mean contact indices for middle class pupils. An indication of the differences between teachers in the degree of their status differentiations is obtained by making within-column comparisons of the values in Table 5.

Column 2 of Table 5 shows the differences between the *mean frequencies of contacts* for middle class pupils and for lower class pupils. The largest positive difference is that for Teacher 7 who had over 35 more contacts per middle class pupil than per lower class child during the observation period. In contrast, Teachers 5, 13, and 19 had only slightly more contacts per mid-

TABLE 5
FOR EACH OF NINETEEN TEACHERS, THE DIFFERENCES IN CONTACT INDICES COMPUTED
SEPARATELY FOR MIDDLE CLASS PUPILS AND FOR LOWER CLASS PUPILS*

Teacher (1)	Difference between mean frequencies of contacts (2)	Difference between DC/S ratios** (3)	Difference between IT/S ratios*** (4)	Difference between I/D ratios**** (5)
1	-13.80	-.03	±.00	+.05
2	-16.27	-.09	+.06	+.15
3	+ 2.69	+.03	+.14	+.16
4	- 9.42	-.26	+.15	+.27
5	+ 1.71	-.12	+.12	+.24
6	+12.65	-.02	+.02	+.05
7	+35.74	-.04	+.09	+.16
8	-14.04	+.02	-.06	-.18
9	- 2.94	+.02	+.06	-.02
10	- 8.70	-.10	+.14	+.31
11	+ 4.19	-.08	+.04	+.08
12	+17.59	-.06	±.00	+.01
13	+ 1.58	-.05	+.03	-.04
14	- .72	-.08	+.25	+.86
15	- 6.07	-.09	+.01	+.10
16	+20.24	+.05	+.13	+.22
17	+10.72	+.07	+.11	+.25
18	- 1.56	+.04	±.00	+.05
19	+ 2.45	±.00	-.01	+.08

*These data are derived by subtracting the mean indices for contacts involving lower class pupils from those for contacts involving middle class pupils. Thus a positive difference indicated that the mean teacher contact index for middle class pupils exceeds that for lower class pupils.

**The DC/S ratio is the proportion of all contacts which are conflict contacts.

***The IT/S ratio is the proportion of all contacts which are "highly integrative."

****The I/D ratio is the ratio of all integrative to all dominative contacts.

dle class child than per lower class child. For Teacher 2, the mean frequency of contacts involving lower class pupils considerably exceeds that for contacts involving middle class pupils. Such findings appear to show that some teachers give more attention to middle than to lower class pupils, while some give more to lower than to middle class pupils; and that among either of these groups of teachers, there is considerable variation in the extent to which one status group is "favored" over another.

The found differences just described are not entirely due to differences between teachers. They may, for example, be due to some differences between pupils being taught by the teachers. Both middle class and lower class pupil groups vary from one classroom to another in respect to mean age, mean ISC, and sex compositions. The most that one can say with respect to causation of the differences between the values in Column 2 of Table 5 is that they

are not attributable to the social class membership of the pupils. Similar statements may be made with respect to differences "between teachers" in the degree to which their behavior is *qualitatively* differentiated on the basis of status. While most such differences "between teachers" may not be true differences, a few teachers stand out as appearing to differentiate particularly strongly between middle and lower class pupils. Thus, for Teacher 4, a teacher who had a great deal of conflict with her pupils, the difference between the *DC/S* ratios for lower and middle class pupils is over twice as large as the corresponding difference for any other teacher. With respect to *IT/S* and *I/D* ratios, Teacher 14 appears to show a considerably greater tendency to differentiate on the basis of status than is shown by most other teachers.

In Table 5, the "favoring" of middle class pupils in respect to quality of contacts is indicated by negative values in Column 3, and positive values in Columns 4 and 5. This pattern of signs of the differences is found for nine of the 19 teachers. These are Teachers 2, 4, 5, 6, 7, 10, 11, 14, and 15. For one teacher, Teacher 8, the pattern of signs is such as to give consistent evidence that she "favors" lower class pupils over middle class pupils. Although the evidence is far from conclusive, the data do tend to show that teachers differ not only as to the degree to which they differentiate between pupils on the basis of status but also in respect to the direction of the differentiation.

G. INTERPRETATION OF FINDINGS

1. *The Relation of Quantity of Teacher Contacts to Pupil Status Level*

The analyses designed to determine whether or not there is a relationship between the quantity of teacher contacts and status level of the pupil show: (a) that the proportion of classrooms in which middle class pupils were found to receive more contacts than lower class pupils is not significantly greater than that expected on the basis of chance alone, and (b) that the proportion of classrooms in which there was found to be a positive correlation between these variables is not significantly greater than that which would be expected if the variables were completely independent. These results fail to support the hypothesis that teachers tend to give more attention to their high than to their low status pupils. The status of a pupil appears to provide no basis for predicting whether the pupil receives more or less attention than pupils who are in the same classroom but who are at other status levels.

While status of pupil and number of teacher contacts involving the pupil are unrelated for the classrooms as a whole, there probably is a relationship

between these variables in some classrooms. Teacher 7, for example, was found to have almost twice as many contacts with her middle class pupils than with her lower class pupils. Also in this classroom the correlation between "pupil social status" and "total number of contacts involving the pupil" was found to be .50 ($N = 31$).

2. *The Relation of Quality of Teacher Contacts to Pupil Status Level*

Results of the analyses testing those hypotheses concerned with qualitative differentiations in teacher behavior are consistent in that they all tend to show high status pupils receive more favorable teacher treatment than do low status pupils. However, there are some important differences between the findings obtained when the analyses include both boys and girls and when they are made for each sex separately.

When the sex factor is disregarded, the findings show the following: (a) the proportion of contacts which are expressions of affection or of approval of child-initiated behavior varies directly with pupil social status, (b) whether the criterion be in terms of IT/S or I/D ratios, the "mental hygiene value" of teacher behavior is higher for pupils of relatively high status than for pupils of relatively low status, and (c) the proportion of contacts which are conflict contacts may or may not be related to pupil social status. For any classroom selected at random from among the nineteen studied, one can predict with better than a fifty-fifty chance of success, that the teacher tends more toward "highly integrative" contacts in her relations with high status pupils than in her relations with low status pupils. One can predict within a similar probability of success that the teacher behavior experienced by the high status pupils has a higher "mental hygiene value" than that experienced by the pupils of low status.

Since the several indices of the quality of teacher contacts are related to sex of pupil and since the status or social class distribution of boys and girls varies from one classroom to another, the sex factor should be removed before one attempts to generalize the results beyond the specific classrooms studied. The analyses for boys show that the ratio of "highly integrative" (IT) contacts to "highly dominative" (DC) contacts tends to be higher for high status boys than for low status boys. They also give some reason to believe (a) that teachers tend more strongly toward conflict with low than with high status boys, and (b) that the ratio of all integrative, (I) contacts to all dominative (D) contacts varies directly with status. However, each of these latter tentative conclusions is supported only by one of two analyses. Finally,

while statistical tests do not yield significant findings with respect to the question of whether IT/S ratios vary directly with pupil status, the results nevertheless closely approach the 5 per cent significance level. Thus the evidence, insofar as boys are concerned, appears to strongly support Hypothesis 4 and to lend some credence to Hypotheses 2 and 3. The differentiation in teacher's behavior as between boys of different status levels is qualitative rather than quantitative and shows up most clearly for one of the indices of the "mental hygiene value" of contacts.

The only finding for girls which is statistically significant for both Analyses *A* and *B* is that teachers tend more strongly toward conflict with low than with high status girls. In addition, the analysis by medians supports the hypothesis (Hypothesis 2) that teachers tend to show more respect for goals of high than of low status girls and the hypothesis (Hypothesis 4) that the "mental hygiene value" of contacts is higher for girls of high status than for girls of low status. All results having to do with the quality of teacher contacts are in the direction which one expects if Hypotheses 2, 3, and 4 were true.

Whether boys or girls are concerned, the tentative conclusion can be drawn that high status pupils tend to be "favored" over low status pupils in respect to some of the qualitative characteristics of the teacher contacts they experience. This does not mean that high status pupils are favored in every classroom. According to the obtained observational data, Teacher 8 actually appears to "favor" low status over high status pupils. Also, there are probably important differences in the degree to which high status pupils are favored. For example, while both Teacher 4 and Teacher 11 seem to favor their high status pupils, this tendency appears to be much stronger for the former than for the latter (see Table 4).

No attempt was made to determine the precise degree of relationship between status of pupil and each of the indices of quality of teacher behavior. The pertinent correlation coefficients seemed to show that none of the teacher behavior indices were closely related to pupil status. However, the assumptions underlying use of correlation coefficients as measures of degree of relationship may not have been fully met by the data used in computing these coefficients; and, in addition, the obtained coefficients were attenuated to a considerable degree by the unreliability of the status and teacher behavior measures.

3. *Explanation of the Relationship between Quality of Teacher Contacts and Pupil Status Level*

Whether there is or is not a system of distinct social classes in the communities in which the investigation was conducted cannot be easily determined, but that there are wide variations in status and that these status variations are accompanied by important differences in ways of life and standards of values is almost certain. The teachers studied were all of above-average status while their pupils came from various status levels. In judging the behavior of all their pupils on the basis of the standards characteristic of high status pupils, the teachers may be expected to react more favorably toward high than toward low status pupils. Also, since high status families have more influence than do low status families, teachers may have a tendency to cater to high status pupils as a means of maintaining or improving their own social positions.

While this seems to be the most likely explanation for the obtained results, it is not the only possible explanation. The study does not, of itself, provide an answer as to what factors are responsible for the relationship between status of the pupil and the quality of contacts which he receives in the classroom. Quite possibly, a basic causal factor is pupil achievement. The relationship found may be simply incidental to the relation between achievement and the quality of teacher behavior received. A recent study by Havighurst and Taba (7) suggests that teachers react to pupils on the basis of achievement rather than on the basis of status, and that in determining the teachers' reactions, status is important largely because it influences pupil achievement. The finding in the present investigation that the quantity and some of the qualitative characteristics of teachers' contacts with pupils are related to pupil achievement is consistent with, but lends no proof to, the Havighurst-Taba hypothesis.

While the present study seems to favor the claims of Warner, Havighurst, Davis, and others that there is some tendency for teachers to favor their high status pupils, there is a strong indication that non-status factors are much more important than status factors in determining the quality of teacher behavior any given child receives in the classroom. Undoubtedly much could be done for both low and high status pupils by a general improvement in selection and training programs so that teachers will behave more sympathetically and understandingly toward all of their pupils.

4. *Range of Applicability of the Findings*

The range of applicability of the findings is not clear, so that generalization beyond the specific classrooms studied is not without its hazards. Quite possibly, the sample of classrooms employed in the present study is representative of all third grades which have the characteristics upon the basis of which the sample was selected or at least all such classrooms which are located in Midwestern communities. However, the writer has insufficient data to determine whether the sample is representative of some such large population. Final conclusions as to the range of applicability of the findings must await further research.

H. SUMMARY

A number of statements have appeared in recent literature to the effect that teachers behave more favorably toward high status than toward low status pupils. To provide a basis for evaluating these statements, a study was made of the classroom behavior of 19 third grade teachers in two central Illinois communities. Each teacher selected for study was a "middle class" woman in charge of a classroom group composed of both "middle class" and "lower class" pupils.

Indices of teachers' behavior toward their individual pupils and toward groups of pupils of different status levels were obtained by means of a simplification of the Anderson-Brewer "Dominative-Socially Integrative" observation scheme (2, 3, 4). The classroom contacts of each teacher were observed for a period of five hours. In most cases observation was completed over a two-day span. Status of pupils was determined by the Index of Status Characteristics devised by Warner, Meeker, and Eells (13). In addition to the observation and status data, age and achievement data for the pupils and some personal data regarding the teachers were collected.

The specific hypotheses tested were that teachers (1) tend to have more classroom contacts, (2) tend less toward conflict, (3) tend more toward "highly integrative" behavior, and (4) tend to conform more closely to the principles of mental hygiene, with high than with low status pupils. Attention was also given to differences between teachers in respect to the degree to which their behavior is differentiated on the basis of status.

In the main, the analysis for testing these hypotheses was based upon the assumption of the validity of the Warner class concepts. However, in some parts of the analysis, status was considered to be continuous, and the Warner social classes were viewed as arbitrary divisions of an unbroken status distribution.

The findings do not support the hypothesis that teachers tend to have more individual contacts with pupils of high status than with pupils of low status. Apparently there is little or no relationship between a pupil's status and the relative amount of attention he receives from the teacher of a particular classroom. On the other hand, the data provide considerable support for the statements that the quality of teacher contacts experienced by high status pupils tends to be better from the mental hygiene standpoint than that of contacts experienced by low status pupils. While the evidence is not always significant statistically, its general trend is clearly in this direction both when the sex factor is controlled and when it is not controlled.

The data provide no accurate indications of the magnitude of the social status differentiation in the classroom behavior of the 19 teachers. In general it appears to be small, although this is apparently not true for all teachers. Also, at least one teacher observed evidently favors her low status pupils over her high status pupils.

No attempt has been made to control all non-status factors. Even determining which factors should be controlled and which should not be controlled would be no small task. However, some attention was given to the effects of achievement differences. The evidence tends to show that both the quantity and the quality of the teacher behavior a child receives are partially dependent upon his level of achievement. Low achievers tend to receive more contacts than high achievers, while high achievers generally receive a better quality of treatment than low achievers. Since, in most classrooms, pupil status and pupil achievement are positively correlated, the found tendency of teachers to favor high status over low status pupils may be simply incidental to their partiality to pupils of relatively high achievement.

The range of applicability of the results obtained in this study is not clear. Further research is needed to determine whether the findings apply to teachers and pupils in other communities and at other grade levels.

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SHORT ARTICLES AND NOTES

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AN EXERCISE IN PERSONALITY ASSESSMENT*

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Except for a few scattered reports, little has been published on techniques other than practicum for training in clinical psychology. There is a transition period fairly early in graduate training of clinical psychologists when the emphasis shifts from academic to professional. After some core courses, an introduction to theories of personality and various courses dealing with scientific method, the trainee is suddenly confronted with the slightly terrifying prospect of facing a clinical subject in the flesh. It is true that some initiation is afforded through the assignment of tests which the budding clinical psychologist inflicts on friends, family, or on some student who happens to come anywhere near his life space. Sometimes a subject is tested before the class and this affords a valuable though often strained common experience. One-way screens serve others in a similar way.

The experience presented below grew out of an actual need in a seminar on interpretation of clinical tests. The course was a practice class on the administration and interpretation of Rorschach and other projective techniques. Some of the students who were fortunate enough to be assigned to a clinic or hospital could bring in problems from the field. The rest of the students had to be satisfied with tests administered to friends, relatives, etc. Problems would arise concerning the discussion of personalities involved and this would be complicated and restricted by the necessity of maintaining the anonymity of the subject or student. Also, such exercises while satisfactory up to a point failed to offer the class a *common* experience in which they would all have equal familiarity. In addition there was no clear cut way of verifying the impressions obtained through testing.

With this as a background the exercise to follow was developed by the class in seminar discussion. It was decided that a member of the class contact the university employment office notifying them that we needed an individual for several hours of work. The class had discussed in detail such

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questions as: (a) what instructions to leave³ with the employment office; (b) the ethical problem involved in employing another person for personality assessment purposes; (c) the instructions to be given to the subject; (d) the possible effect of such an experience on the subject; (e) consideration of the need to screen the subject so that we would not expose a disturbed individual to whatever stress may be inherent in the assessment; (f) dealing with the subject appropriately after the exercise so as to mitigate any anxieties that may be aroused; (g) establishing a fair rate of pay for the subject which could be shared easily (and voluntarily) by the class members.

The class had decided to engage a subject rather than to ask for volunteers for several reasons, such as the selective factors involved in such volunteering, the ordeal of meeting the class at its scheduled time (8:00 A.M.), the possibility of previous acquaintanceship by some of the members if we should tap our usual sources for volunteers, and the short period of time available in which to locate a suitable subject. Before meeting the class the prospective "employee" contacted the instructor. After a preliminary interview (partly for screening purposes and partly to describe the general nature of the exercise) the instructor administered a Rorschach to the subject. This was not scored but reproduced on ditto machine and held for the appropriate time in the prearranged schedule. A few days later, the subject was introduced to the class.

However, no names were used throughout the project. The instructor started by saying, "This is our visitor for today. I've told him about our project and he has agreed to meet with you, to answer questions and to participate in discussions with you. Perhaps I could begin by asking about your work here at the university. . . ." The design of the group interview was planned ahead of time. It was to begin in a general non-threatening way by the instructor. Then questions from the class would be encouraged. The students were instructed to ask whatever questions they felt might be of assessment value. Their judgment would be the guide as to the ethical and clinical suitability of questions which would be asked. It was also planned to set up a wire recording machine in order to have a record of the interview. The subject had no objection to the recorder.

After 40 minutes of group interview *S* was given a non-verbal projective test; he was asked to go to the blackboard to draw a person. A person of the opposite sex was then drawn on the back of this movable blackboard. We expected to get from this part of the exercise a demonstration of expressive behavior, essentially psychomotor in nature. We were able to watch clearly and collectively how *S* performed before a group in terms of muscle

and body coördination rather than with words. Questions, complaints, mistakes, erasures, unskilled drawing, composition of sketch, pressure of writing—these and many other bits of interesting and significant behavior were observed. When asked to draw a woman on the other side of the blackboard after he first drew a man, *S* was confronted with an unspoken problem: should he turn the movable blackboard on its wheels (an awkward movement), or should he go behind the board and work there out of sight of the class? As it happened our subject chose to draw in the hidden position, whereupon we then instructed him to turn the board around so that we could observe his work. Photographs were taken of these drawings at a later hour to give us a permanent record.

After this task, *S* was put through what the class dramatically labelled decompression. That is, *S* was told "That's all for now," and "now that it's over could you tell us how it was." The students supported this relaxed setting by closing their notebooks and some lit up cigarettes. *S* was offered a cigarette and casually questioned about the rigors of the ordeal. He agreed it was somewhat "different" but denied it was difficult or unpleasant. There was some joking and laughing by both students and subject as tensions were released during this brief terminal phase of the interview.

S was then ushered into another room where he took the last test of the project, the California Test of Personality. This is a yes-no type of questionnaire, 180 items covering various phases of personal and social adjustment. Simultaneously, the class was busy predicting his responses to each item of this test. Prior to the interview each member of the class had taken the same questionnaire in order to equalize familiarity with this as the predictive instrument. Also it was thought that some relationship could be found between correct predictions and the class member's own responses. At any rate, it gave them some feeling of *S*'s experience in taking this test.

In addition to predicting *S*'s responses to the questionnaire, the class attempted to estimate the Rorschach histogram and the other proportions listed on page four of the Klopfer and Davidson Rorschach record blank. This was avowedly a difficult task but the class was game enough to plunge ahead and risk it. Each student drew a histogram on a Rorschach blank indicating principal anticipated relationships among determinants, and filled in the rest of the page.

Copies of *S*'s actual Rorschach protocol were then distributed and the class was given a most difficult instruction. *Contamination* control required that they not discuss the case either with classmates or with anyone else until they had written their overall evaluations and turned in their re-

ports at the next meeting. Each student scored and interpreted the same Rorschach protocol independently then prepared a comprehensive personality report integrating all the material we had obtained.

At the next class meeting contamination control was removed. *S*'s responses to the questionnaire were read and correct prediction scores were computed. *S*'s actual Rorschach histogram was placed on the blackboard and superimposed over this was a composite histogram representing the class average histogram. Each student had his own predicted histogram and *S*'s actual profile for additional comparison.

To add further fuel to the case discussion an overall adjustment rating was made by each member of the class on a scale from zero to 10; zero indicating extremely bad adjustment and 10 excellent adjustment. The instructor was invited to stick his neck out by jotting down his adjustment rating of *S* just as the students did. During the discussion different students read their reports and gave their adjustment rating. Since the ratings ranged from three to eight, it is apparent there was no dearth of differences of impressions to be ironed out in conference.

It was interesting to observe how differently the students saw the same subject and what a wealth of clinical clues were collected. The more intuitive students were pressed by the others to specify and justify the basis of their impressions. Since each student was necessarily selective in the material he picked up for interpretation it became obvious how his values and predilections played an important rôle in understanding the case.

In going over the Rorschach and questionnaire predictions the students had additional opportunity to make explicit the bases for their impressions. Various hypotheses were brought out which could be supported or destroyed only by additional evidence. There seemed to be wider agreement on the defects in *S*'s personality than upon his strengths.

Sufficient interest was aroused so that some of the students asked for more assessment of this nature, perhaps a course on assessment. A few research worthy hypotheses were considered during the course of the experience. One of the trainees carried over the technique to his clinic and is working out an assessment project for psychologists and psychiatrists. It is his feeling that such projects jointly experienced and discussed would do a lot for the improvement of communication and understanding between these professional groups. Another student found that the initial interview of *S* was of special value to him in his stage of training in face-to-face interviewing. The bringing together of qualitative and quantitative methods on a single case was of interest to still other students.

Summary. A classroom assessment technique is presented for use in the early training stages of clinical psychologists. A subject is engaged to take objective and projective tests and to be interviewed by the class as a whole. One of the tests, the draw a person, is performed on the blackboard before the class as part of the group interview. A personality questionnaire and the Rorschach test are administered outside the classroom; attempt is made by the students to forecast *S*'s actual responses to the questionnaire items. Also they estimate the histogram and quantitative ratios of the Rorschach all on the basis of the group interview. Finally, all materials are independently integrated by each trainee in the form of a personality evaluation report. A case conference type of discussion then follows. Beside serving as a transition experience for the new clinical psychologist from academic to a more clinical outlook, this procedure provides a common class experience that is alive and challenging. It includes a method of verification and suggests meaningful experiments in clinical research.

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THE LONGEVITY OF SCIENTISTS*

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One of the most impressive, and most welcome phenomena of this twentieth century is the rapid increase in the average length of life of the population. Many of the predictions regarding the extension of the human life-span which were made 25 years ago have proved to be too conservative. The traditional three-score-and-ten has been exceeded so many times that one has to be among the nonogenarians at the present time before his birthday is considered anything extraordinary.

While it is common knowledge that the mean age of the people of several countries is steadily advancing, a study of the length of lives of scientists, and with them a large number of other highly educated persons, indicates that they have certain advantages which have not yet been fully explained. This article presents the summary of an investigation covering the length of lives of more than ten thousand eminent people, many of whom were among the world's leading scientists. And in order that there might be data for comparison, scientists with non-scientists, the length of lives of several thousand artists; theologians, philosophers and poets were included. A few of the 23 groups, by occupations, which were tabulated, are given here.

Educators (167 of the most eminent) had an average length of life of 72.56 years. Lawyers (270) had a mean of 72.39 years; Engineers (168) 71.10 years, Naturalists (281) 70.35 years, Historians (343) 70.12 years, and Inventors (141) 70.09 years. These head the list, and have established records by exceeding their 70th years. They were closely followed by Chemists (143) 69.57 years, Medical Men and Biologists (331) 68.47 years, and Mathematicians (256) 67.11 years. For comparison, as noted above, the following groups of eminent persons in other occupations than in the sciences, were included. Sculptors (139) 68.44 years, Musicians (950) 67.40 years, Painters (772) 67.12 years, Actors (162) 66.05 years, and Poets (684) 61.94 years. This comparison induces one to ask why there should be such differences between the scientists and those engaged in the Arts. The range between the means of the first group is 2.99 years, and from the mean of

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Poets to that of Sculptors it is 6.50 years.³ In each of these two groups (scientists and artists) 90 per cent of the ages were grouped so closely around their averages that the differences are not statistically significant between any two of them when paired.

Furthermore, a study of the mean ages of the groups in comparison with their respective standard deviations shows a negative correlation of $r = -.91$ which is large enough to be worthy of consideration. It indicates, of course, that the greater the distribution of deviations, the shorter were the lives of many of the eminent.

This high negative correlation also suggests that the greater the mean age, the smaller will be the range of years within which members of a group of scientists will attain eminence. Thus Naturalists and Chemists would have smaller deviations than would Writers, Actors, or Poets. One interpretation of this is that more preparation for the pursuit of their professional work is necessary for those with smaller deviations than would be required for the non-scientists. This also suggests that there is a screening process present through which the eminent scientists must have passed at some time during their careers.

Following the preceding considerations one might ask what relationship age has to the granting of eminence, for some people may believe that such a distinction would more readily be granted to the scientists of advanced years than to younger men with similar qualities. The factor of correlation between the number of persons in each group, when tabulated for age levels, proved to be .45 which does not indicate a very high tendency to grant particular favoritism to illustrious persons of advanced years just because they happen to be old, but one should keep in mind that the r is positive, showing that such a relationship does exist. However the conclusion may be offset when one recalls that a scientist may be continually creative, with little regard to age, and consequently be more able at 60 or 70 than he was at 40 years of age.

Another clue which may explain why scientists tend to outlive artists is that the median dates when one group lived may be earlier than those for the other. In order to look into this possibility the dates for each of the thousands of cases used in this study were compared with the mean longevity of each group. The r proved to be .88 which shows a fairly high interdependence between the decade when each of these people was born and the length of his life-span. This, of course, is parallel with the fact that the average length of scientists and artists, as well as others has been increasing.

Another problem which is of considerable interest, and about which little is known so far, concerns the effects of innate capabilities upon longevity. To be more specific, the reader has already noticed that poets stand next to the bottom of the list, and that they also have the greatest range of years over which eminence was attained (Mean age 61.94 years, standard deviation 16.46 years). In contrast one notes that the natural scientists stand well near the top of the list, and with a far smaller deviation.

There are several suggestions which the reader may think of as he studies this problem. It may be, for example, that eminent poets depend more directly upon certain specific factors of intelligence, such as word fluency or word meaning, than scientists do, and consequently they are less inhibited by the amount and variety of training required before they reach a state of artistic excellence.

If this were found to be true then the standard deviation of their ages would be greater than that of scientists since their unique native intelligence would reach an appropriate flowering in good poetry at relatively early years. The standard deviation of poets, as stated above, was found to be actually much higher than that of scientists, but this does not mean that scientists do not also have certain innate, superior intellectual qualities which contribute to their preeminence in a manner similar to poets. It does, however, suggest that one professional field may require fewer of the native mental abilities than another.

A second possibility that should be introduced here is that competition for high professional status and public recognition, both of which appear to be essential to eminence, may not be equally strong in the case of each occupational group. If, for example, chemists face greater hazards, and are less subjected to public approval than musicians, then those who are less capable physically or mentally would not survive to eminence, with the result that their sigma deviation would be less than that for musicians. And that is exactly what this study has found to be true. It is hardly to be doubted that many more people have heard of, and passed their opinions on, the excellence of Rembrandt, Shakespeare, and Bach than have heard of the best known chemist that one could name.

To put this on a broader base it may be stated that the difference between the means of the ages of scientists and of poets is 3.675 years with a standard error of 1.05 years, which indicates that the difference between the averages of their longevity is due to some other factor than to chance alone.

Other propositions, such as the belief that professional artists live more on

their emotions, and thus wear out earlier, or that temperamental differences between artists and scientists play a major part in determining their longevity, are worthy of more thought, and a lot of research. There is also the hypothesis that scientists enjoy higher standards of living than artists, and therefore are better able to ward off disease. None of these can be accepted or rejected without additional study.

But one more should be presented for consideration along with the other hypotheses regarding the differences between the means of longevity of scientists and artists, namely that there may finally be found a significant correlation between longevity and the native factors of intelligence. This does not imply that scientists are more liberally endowed than other eminent people, but it should be considered in any additional work on the relationship between longevity and occupations. One might add that this seems to be largely a problem for biological research, but on second thought it falls directly into the field of social psychology because of the interrelationship between the native capacities of the individual and the rôle he comes to play in social life. Culture undoubtedly has a major part in the liberation of human capabilities and their application. Culture provides the avenues of release and application, or it does not, depending upon the state of development of the particular culture area under study.

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BOOKS

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Conditions. Only those books that are listed below in this section are eligible for such reviews. In general, any book so listed contains one or more of the following traits: (a) Makes an important theoretical contribution; (b) consists largely of original experimental research; (c) has a creative or revolutionary influence in some special field or the entire field of psychology; (d) presents important techniques.

The books are listed approximately in order of receipt, and cover a period of not more than two years. A reviewer must possess the Ph.D. degree or its equal in training and experience.

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CRITICAL REVIEWS OF RECENT BOOKS

The Journal of Social Psychology, 1954, 39, 305-306.

(Cattell, Raymond B. *Factor Analysis: An Introduction and Manual for the Psychologist and Social Scientist*. New York: Harper, 1952. Pp. 462.)

REVIEWED BY ALVIN E. WINDER

Professor Cattell's intention in writing this book was to provide both the general student and the practitioner with a suitable exposition of the methods and computing processes of factor analysis. The text has been divided into three sections. Part one provides an overview of the logic and purpose of factor analysis. It opens with a highly provocative discussion of the place of this technique in the armamentarium of scientific research. The major emphasis is on the usefulness of factor analysis in supplying fundamental concepts from which controlled experiments may proceed. Cattell points out a radical departure from this the classical viewpoint on factor analysis, when he speaks of the possibility of hybrid design made up of a combination of factor analysis and the controlled experiment. This possibility is explored in detail in part three of the text. The remainder of this section is devoted to a discussion and demonstration of the extraction and interpretation of factors and to the principle of rotation. Finally there is a discussion of the setting of factor analysis in a variety of experimental designs.

A great deal of space is devoted to a presentation of the *O-P-Q* and *R* techniques. Cattell examines Stephenson's claims that *Q*-technique is economical and that it yields knowledge of personality not inferrible by the use of other methods. The author finds that *Q*-technique loses an original common factor, yields simple structure only under special conditions, and requires the use of very large samples before the results can be generalized. Cattell states that *Q*-technique has its use mainly in determining the number of types that exist in a given population.

Section two opens with a presentation of the principal alternative designs in factorizing a matrix. Holzinger's bifactor, Burt's bipolar factor, and Thurstone's multifactor designs are discussed in terms of their practicability. The author feels that the only plan that is acceptable is one that is flexible to reality and that permits the emergence of whatever natural structure exists in the data. He further states that only a method that uses rotation will meet

these requirements. Cattell believes that a choice made on the basis of either ease of computation or compulsive accuracy of computation must remain secondary to the extraction of the scientifically meaningful from the data. Cattell states that the centroid method is the statistical tool best adapted to meet the above mentioned criteria. For this reason he has devoted the major part of this section to a presentation of the centroid method and the basic calculations applicable to rotation. At the end of this division additional methods of factor resolution are discussed. After carefully evaluating these methods Cattell concludes that simple structure alone is theoretically sound for general application.

The student who has successfully completed these first 16 chapters should be expected to have a good grasp of the concepts and logic of factor analysis, its place in scientific research, a working familiarity with the centroid method, and an ability to rotate for simple structure.

The final third of the text has been especially prepared for the research worker and the more theoretically minded student. Here issues of research design and special problems of technique are carefully discussed and evaluated by the author. This section opens with the effect of chance, of sampling, and of experimental errors upon the number of factors that should be extracted from a correlation matrix. Tests of completeness of factor extraction are discussed and Cattell concludes that in almost all cases practitioners err on the side of extracting too few factors. The three succeeding chapters are devoted to problems of experimental design and their relationship to the scientific usage of factor analysis. Choice of variables, of population, and sample selection effects are discussed. Several designs requiring the combining of physical control and statistical control are explored. The final chapter returns to the more immediate problems of the practitioner and is devoted to a presentation of several labor saving devices and aids in computing. Directions and diagrams for computation by I.B.M. methods are presented.

The reviewer has used this manual both as a text in the classroom and as a guide to computing processes. He has found its organization and expository style well suited to meet the needs of both the student and the practitioner.

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CHARACTERISTICS OF CONVICTED SEX OFFENDERS*

Diagnostic Center, State of New Jersey

ALBERT ELLIS, RUTH R. DOORBAR, AND ROBERT JOHNSTON III

A. PROBLEM AND PROCEDURE

This paper reports one of a series of studies of convicted sex offenders who have been psychologically and psychiatrically examined at the Diagnostic Center of the State of New Jersey (3, 4). Under the New Jersey Sex Offender Act of 1949 all individuals convicted of minor or major sex crimes in the State had to be sent to the Center for a thoroughgoing psychological-psychiatric testing and interviewing process; and the sample employed in the present study consists of the first 200 consecutive subjects examined under the Act. It is, consequently, an unbiased 100 per cent sample; and it is doubtlessly representative of sex offenders who are normally apprehended and convicted in New Jersey.

In the present study, data on 37 variables were gathered in the course of examining the 200 subjects by means of psychiatric social worker, psychological and psychiatric interviews, and by means of psychometric and projective tests (including the Wechsler-Bellevue, Rorschach, and Figure Drawing tests in all instances, and various other projective techniques in some cases). Information on each of the variables was dichotomized so as to effect as nearly a 50-50 split as possible on each; and fourfold tables were constructed in accordance with the technique employed by Lodge (7) and Ellis (2). From these tables tetrachoric coefficients of correlation were computed with the aid of the Chessire, Saffir, and Thurstone tables (1). In addition, the fourfold distributions were also tested for significant relationships by the Chi-square technique.

The 37 variables employed in the study, together with the percentages of subjects who were found to be positive in each variable, are listed in Table 1. Most of the variables are self-explanatory; but some comment is necessary concerning a few of them. Variable 12 includes individuals who have been convicted for a major sex offense—meaning, sexual assault, rape, incest, sex relations with a minor, homosexual acts, and bestiality. Variable 13 includes individuals who have been convicted for committing a deviational sex offense—meaning, sex relations with a minor, exhibitory acts,* homosexual acts, and

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TABLE 1

INTERCORRELATIONS: DATA ON 37 VARIABLES OBTAINED FROM PSYCHOLOGICAL, SOCIOLOGICAL, AND PSYCHIATRIC EXAMINATION OF 200 CONVICTED SEX OFFENDERS

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Under thirty years of age (53%)													
2. Negro (25%)	40		-50	-12	07	05	17	-45	24	31	28	-32	-60
3. Unmarried (46%)	40	19	19	08	18	-72	22	-11	-18	37	17	-27	-57
4. Has two or more brothers (50%)	50	19	07	-05	-02	08	-31	11	35	20	00	-28	00
5. Has two or more sisters (51%)	-12	08	07	43	08	09	-44	-01	06	-11	31	-16	-17
6. Catholic (41%)	07	18	-05	43	-08	-08	21	06	07	-08	07	-17	08
7. Attends church regularly (30%)	05	-72	-02	08	-08	30	03	31	-14	-09	08	08	08
8. Has had less than eighth grade schooling (44%)	17	22	08	09	-08	30	-10	-02	03	-25	-13	-11	-11
9. Admits some school truancy (38%)	-45	-11	-31	-44	21	03	-10	07	17	20	36	18	18
10. Has generally earned less than \$50 a week (69%)	24	-18	11	01	06	31	-02	07	21	02	04	-06	-06
11. Has had a record of irregular employment (40%)	31	37	35	06	07	-14	03	17	21	38	08	-20	-20
12. Has been convicted for a major sex offense (45%)	28	17	20	-11	-08	-09	-25	20	02	38	17	-07	-07
13. Has been convicted for a deviant sexual offense (63%)	-32	-27	00	31	07	08	-13	36	04	08	17	40	40
14. No history of extenuating circumstances in connection with offense (52%)	-60	-57	-28	-16	-17	08	-11	18	-06	-20	-07	40	40
15. Has committed previous sex offenses (with or without convictions) (55%)	-50	-62	-21	02	-12	12	03	17	01	-01	-01	23	71
16. Has been convicted of previous non-sex offenses (32%)	-23	-28	-04	-02	-06	09	00	08	01	-02	-05	-11	39
17. Has below-average intelligence (41%)	-02	24	-09	15	16	02	-25	25	15	-19	17	12	-18
18. Has formed few friendships with others (54%)	02	31	10	32	21	-09	03	62	10	47	27	05	-14
19. Has suffered from severe emotional deprivation during childhood (39%)	-11	-41	-17	21	00	00	-04	24	-07	-01	27	00	03
20. Has been inhibited in his heterosexual love relationships (46%)	08	14	00	-02	-11	-09	-03	22	04	09	15	-03	04
21. First sex experiences occurred relatively late in life (38%)	-37	-41	-01	13	05	08	-09	12	-05	13	08	10	25
22. Has had considerable fear or guilt about masturbation (32%)	15	-16	-10	33	19	30	14	16	-12	03	-19	13	06
23. Has tended to have rapid sex ejaculations (51%)	-20	-35	-17	05	-14	20	08	05	09	-09	-27	09	26
24. Has had quite inadequate sex education at home (33%)	-03	-26	-03	07	01	03	-27	-01	12	-13	-16	-01	01
25. Tends to be easily depressed (66%)	-10	-13	18	01	-14	-07	-09	01	13	10	02	-14	20
26. Tends to have feelings of inadequacy (69%)	-05	-02	-28	-20	-21	09	-10	-11	07	-10	02	07	00
27. Tends to have considerable anxiety (65%)	-15	-22	-11	-06	-08	16	-13	09	14	04	08	19	27
28. Tends to be escapist or evasive (42%)	-20	-36	-27	-21	01	30	-01	12	-07	-17	-10	09	23
29. Tends to be excitable (45%)	-24	-41	03	07	09	22	-37	47	16	-03	25	35	35
30. Tends to have considerable hostility to others (28%)	-09	07	05	-08	-01	17	-01	15	04	-20	06	02	-04
31. Tends to be quite tense (41%)	20	05	00	12	08	-02	-25	20	09	-08	28	46	-12
32. Tends to be distinctly compulsive (48%)	-08	-56	-10	-09	-05	20	03	13	-12	-29	-22	-01	20
33. Tends at times to use alcohol to excess (35%)	00	-45	-17	-18	-10	28	-15	02	12	04	09	03	36
34. Tends to lack insight into his behavior (64%)	-43	-37	-21	18	-09	09	-35	19	12	-32	03	40	40
35. Is severely emotionally disturbed (46%)	-22	-25	-13	06	05	19	-21	31	00	09	23	38	50
36. Is judged to be committable to a mental institution (26%)	-30	-56	-17	-31	-27	30	08	20	05	-14	30	29	53
37. Is judged to have a poor prognosis (33%)	-47	-46	06	20	-17	24	-15	19	03	00	30	36	57
	-40	-23	04	17	11	19	-13	34	06	14	35	42	42

TABLE 1 (continued)

Variable	14.	15	16	17	18	19	20	21	22	23	24	25
1. Under thirty years of age (53%)	-50	-23	-02	02	-11	08	-37	15	-20	-03	-10	-05
2. Negro (25%)	-62	-28	24	31	-41	14	-41	-16	-35	-26	-13	-02
3. Unmarried (46%)	-21	-04	-09	10	-17	00	-01	-10	-17	-03	18	-28
4. Has two or more brothers (50%)	-02	-02	15	32	21	-02	13	33	05	07	01	-20
5. Has two or more sisters (51%)	-12	-06	16	21	10	-11	05	19	-14	-01	-14	-21
6. Catholic (41%)	12	09	02	-09	00	-09	08	30	20	03	-07	09
7. Attends church regularly (30%)	03	00	-25	03	-04	-03	-09	14	08	-27	-09	-10
8. Has had less than eighth grade schooling (44%)	17	08	25	62	24	22	12	16	-05	-01	01	-11
9. Admits some school truancy (38%)	01	01	15	10	-07	04	-05	-12	09	12	13	07
10. Has generally earned less than \$50 a week (69%)	-01	-02	-19	47	-01	09	13	03	-09	-13	10	-10
11. Has had a record of irregular employment (40%)	-01	-05	17	27	10	15	08	-19	-27	-16	02	02
12. Has been convicted for a major sex offense (45%)	23	-11	12	05	00	-03	10	13	09	-01	-14	07
13. Has been convicted for a devotional sex offense (63%)	71	39	-18	-14	03	02	25	06	26	01	20	00
14. No history of extenuating circumstances in connection with offense (52%)	38	-10	06	03	-01	20	19	12	-27	05	09	09
15. Has committed previous sex offenses (with or without convictions) (55%)	38	00	11	-12	02	12	02	12	-02	20	-05	09
16. Has been convicted of previous non-sex offenses (32%)	-10	00	10	13	33	02	02	-07	-09	-15	03	03
17. Has below-average intelligence (41%)	06	11	10	-02	26	00	20	-08	-21	01	-10	-10
18. Has formed few friendships with others (54%)	03	-12	13	-02	01	06	01	02	-15	-02	17	17
19. Has suffered from severe emotional deprivation during childhood (39%)	-01	02	33	26	01	00	-10	17	-26	14	-05	01
20. Has been inhibited in his heterosexual love relationships (46%)	20	12	02	00	06	00	17	02	10	30	-01	01
21. First sex experiences occurred relatively late in life (38%)	19	02	02	20	01	-10	17	-18	-16	-18	08	08
22. Has had considerable fear or guilt about masturbation (52%)	12	12	-07	-08	02	17	02	-18	01	00	00	-17
23. Has tended to have rapid sex ejaculations (51%)	-27	-02	-09	-21	-15	-26	10	-16	01	00	-24	-24
24. Has had quite inadequate sex education at home (33%)	05	20	-15	01	-02	14	30	-18	20	00	-24	-24
25. Tends to be easily depressed (66%)	09	-05	03	-10	17	-05	-01	08	08	-17	-24	57
26. Tends to have feelings of inadequacy (69%)	30	09	17	07	10	-13	-18	30	-10	08	-30	50
27. Tends to have considerable anxiety (65%)	24	13	-06	-04	11	-14	-13	17	23	02	-30	50
28. Tends to be escapist or evasive (42%)	43	36	23	30	15	14	12	19	-08	02	10	17
29. Tends to be excitable (45%)	06	03	54	-02	-12	05	-04	-08	02	00	30	-10
30. Tends to have considerable hostility to others (28%)	01	-04	58	20	-10	26	08	-13	-23	-06	-02	02
31. Tends to be quite tense (41%)	21	14	00	-01	-16	-01	24	03	25	03	30	25
32. Tends to be distinctly compulsive (48%)	39	18	-07	05	09	-11	12	01	15	07	-01	34
33. Tends at times to use alcohol to excess (35%)	00	-08	12	-02	05	-03	00	-02	10	05	-10	00
34. Tends to lack insight into his behavior (64%)	49	28	15	32	11	06	00	05	10	-09	09	-03
35. Is severely emotionally disturbed (46%)	72	49	12	08	-08	20	15	20	19	-25	10	06
36. Is judged to be committable to a mental institution (26%)	79	63	-02	12	15	10	30	19	-01	-16	22	-01
37. Is judged to have a poor prognosis (33%)	50	24	30	40	15	21	22	04	-16	-36	00	02

TABLE 1 (continued)

Variable	26	27	28	29	30	31	32	33	34	35	36	37
1. Under thirty years of age (53%)	-15	-20	-24	-09	20	-08	00	-43	-22	-30	-47	-40
2. Negro (25%)	-22	-36	-41	07	05	-56	-45	-37	-25	-56	-46	-23
3. Unmarried (46%)	-11	-27	03	05	00	-10	-17	-21	-13	-17	06	04
4. Has two or more brothers (50%)	-06	-21	07	-08	12	-09	-18	18	06	-31	20	17
5. Has two or more sisters (51%)	-08	01	09	-01	08	-05	-10	-09	05	-27	-17	11
6. Catholic (41%)	16	30	22	17	-02	20	28	09	19	30	24	19
7. Attends church regularly (30%)	-13	-01	-37	-01	-25	03	-15	-35	-21	08	-15	-13
8. Has had less than eighth grade schooling (44%)	09	12	47	15	20	13	-02	19	31	20	19	34
9. Admits some school truancy (38%)	14	-07	16	04	09	-12	12	12	00	05	03	06
10. Has generally earned less than \$50 a week (69%)	04	-17	-03	-20	-08	-29	04	-32	09	-14	00	14
11. Has had a record of irregular employment (40%)	08	-10	25	06	28	-22	09	03	23	30	30	35
12. Has been convicted for a major sex offense (45%)	19	09	35	02	46	-01	03	40	33	29	36	42
13. Has been convicted for a deviant sexual offense (63%)	27	23	35	-04	-12	20	36	40	50	53	57	42
14. No history of extenuating circumstances in connection with offense (52%)	30	24	43	06	01	21	39	00	49	72	79	50
15. Has committed previous sex offenses (with or without convictions) (55%)	09	13	36	03	-04	14	18	-08	28	49	63	24
16. Has been convicted of previous non-sex offenses (32%)	17	-06	23	54	58	00	-07	12	15	12	-02	30
17. Has below-average intelligence (41%)	07	-04	30	-02	20	-01	05	-02	32	08	12	40
18. Has formed few friendships with others (54%)	10	11	15	-12	-10	-16	09	05	11	-08	15	15
19. Has suffered from severe emotional deprivation during childhood (39%)	-13	-14	14	05	26	-01	-11	-03	06	20	17	21
20. Has been inhibited in his heterosexual love relationships (46%)	-18	-13	12	-04	08	24	12	00	00	15	30	22
21. First sex experiences occurred relatively late in life (38%)	30	17	19	-08	-13	03	01	-02	05	20	19	04
22. Has had considerable fear or guilt about masturbation (52%)	-10	23	-08	02	-23	25	15	10	10	19	-01	-16
23. Has tended to have rapid sex ejaculations (51%)	08	02	02	00	-06	03	07	05	-09	-25	-16	-36
24. Has had quite inadequate sex education at home (33%)	-30	-30	10	30	-02	30	-01	-10	09	10	22	00
25. Tends to be easily depressed (66%)	57	50	17	-10	02	25	34	00	-03	06	-01	02
26. Tends to have feelings of inadequacy (69%)	55	55	34	-09	-03	14	40	00	20	20	05	14
27. Tends to have considerable anxiety (65%)	34	25	25	-01	-10	40	36	-05	40	34	21	19
28. Tends to be escapist or evasive (42%)	-09	-01	28	28	32	30	38	23	69	43	52	60
29. Tends to be excitable (45%)	13	-10	32	41	41	36	02	-05	09	18	03	24
30. Tends to have considerable hostility to others (28%)	-04	40	30	36	18	18	-17	19	32	42	09	47
31. Tends to be quite tense (41%)	40	36	38	02	-17	28	28	-06	22	37	23	26
32. Tends to be distinctly compulsive (48%)	00	-05	23	-05	19	-06	-15	-15	49	30	25	31
33. Tends at times to use alcohol to excess (35%)	20	40	69	09	32	22	49	11	00	12	22	22
34. Tends to lack insight into his behavior (64%)	20	34	43	18	42	37	30	00	50	55	78	53
35. Is severely emotionally disturbed (46%)	05	21	52	03	09	23	25	12	55	78	65	65
36. Is judged to be committable to a mental institution (26%)	14	19	60	24	47	26	31	22	78	53	65	65
37. Is judged to have a poor prognosis (33%)	14	19	60	24	47	26	31	22	78	53	65	65

bestiality. Variable 14 includes individuals who have no history of extenuating circumstances in connection with their sex offense, and does not include those who were under the influence of alcohol at the time they committed the offense, who were sexually enticed by girls who later accused them of rape, or who otherwise had some extenuating circumstances surrounding their offense. Variable 36 includes individuals who were found to be so severely disturbed, after psychological-psychiatric examination that, under the provisions of the Sex Offender Act of 1949, they were judged to be committable for treatment to a mental institution.

The tetrachoric coefficients of correlation obtained by intercorrelating the 37 variables employed in the study are listed in Table 1. When tested by Kelley's (5) formula for the significance of tetrachoric correlations, all correlations in the table which are .28 or higher are found to be significant at the .01 level of confidence.

When the fourfold tables from which these correlations are derived are tested by Chi-square analysis, it is found that all correlations which are .38 or higher are significant at the .05 level of confidence. Since the significance figures given by the Chi-square analysis are the more conservative ones, and since Chi-square involves no assumptions as to the normality of the distributions of the thirty-seven variables employed in the study, it will be assumed in this paper that only obtained correlations of .38 or higher are clearly significant, and that all those between .28 and .38 are of probable but dubious significance.

B. RESULTS

The obtained intercorrelations showing the relationships among the 37 variables employed in the study are listed in Table 1. Using a conservative Chi-square analysis to determine the level of significance of these correlations, we find the following significant relationships:

1. Convicted sex offenders who are under 30 years of age tend to have completed more than seven grades in school; to be married; to include relatively more Negroes than whites; to have committed non-deviational sex offenses; to have committed their offenses under extenuating circumstances; to be non-alcoholic; to be deemed to be non-committable to a mental institution; and to be judged to have a favorable prognosis.

2. Offenders who are Negro tend to be under 30 years of age; to be non-Catholic; to be relatively sociable; to have committed non-deviational sex offenses; to have committed their sex offenses under extenuating circumstances; to be free from inhibitions in their affectional relationships; to be free from severe emotional disturbance; to be non-escapist and non-evasive;

to be non-compulsive; to be free from considerable tenseness; and to be judged to be non-committable to a mental institution.

3. Offenders who are unmarried tend to be over 30 years of age.

4. Offenders who have two or more brothers tend to have two or more sisters and to have gone beyond the seventh grade in school.

5. Offenders who have two or more sisters tend to have two or more brothers.

6. Offenders who are Catholic tend to include relatively few Negroes.

7. Offenders who attend church regularly show no significant interrelationships.

8. Offenders who have had less than eighth grade schooling tend to be over 30 years of age; to have less than two brothers; to be escapist or evasive; to have below-average intelligence.

9. Offenders who admit to being truant in school show no significant relationships.

10. Offenders who have generally earned less than \$50 a week tend to have below-average intelligence and to have had irregular employment records.

11. Offenders who have had a record of irregular employment tend to have earned less than \$50 a week.

12. Offenders who have been convicted of a major sex offense tend to have committed a deviational sex offense; to lack insight; to have considerable feelings of hostility toward others; to use alcohol to excess; and to be judged to have a poor prognosis.

13. Offenders who have been convicted of a deviational sex offense tend to be over 30 years of age; to include relatively few Negroes; to have committed a major sex offense; to have committed their offense without extenuating circumstances; to be severely emotionally disturbed; to lack insight; to have committed previous sex offenses; to be inclined to indulge excessively in alcohol; to be judged to be committable to a mental institution; and to be judged to have a poor prognosis.

14. Offenders who have no history of extenuating circumstances in connection with their sex offense tend to be over 30 years of age; to include relatively few Negroes; to have committed deviational sex offenses; to have committed previous sex offenses; to be severely emotionally disturbed; to be escapist or evasive; to lack insight; to be compulsive; to be judged to be committable to a mental institution; and to be judged to have a poor prognosis.

15. Offenders who have committed previous sex offenses (for which they may or may not have been apprehended and convicted) tend to have committed deviational sex offenses; to have committed their offense without ex-

tenuating circumstances; to be severely emotionally disturbed; and to be judged to be committable to a mental institution.

16. Offenders who have been convicted of previous non-sexual offenses tend to be quite excitable and to have considerable hostility toward others.

17. Offenders who have below-average intelligence tend to have less than an eighth grade education; to earn less than \$50 a week; and to be judged to have a poor prognosis.

18. Offenders who have formed few friendships with others tend to include relatively few Negroes.

19. Offenders who have suffered from severe emotional deprivation during their childhood show no significant interrelationships.

20. Offenders who have been inhibited in their love relationships show no significant interrelationships and to include relatively few Negroes.

21. Offenders who have had their first sex experience relatively late in life show no significant interrelationships.

22. Offenders who have had considerable fear or guilt about masturbation show no significant interrelationships.

23. Offenders who have tended to have rapid sex ejaculation show no significant interrelationships.

24. Offenders who have had quite inadequate sex education at home show no significant interrelationships.

25. Offenders who tend to be easily depressed tend to have inadequacy feelings and to have considerable anxiety.

26. Offenders who tend to have feelings of inadequacy tend to be depressed; to have considerable anxiety; and to be compulsive.

27. Offenders who tend to have considerable anxiety tend to be depressed; to have feelings of inadequacy; to show considerable tenseness; and to lack insight.

28. Offenders who tend to be escapist or evasive tend to include relatively few Negroes; to have had less than an eighth grade schooling; to have committed their sex offense without extenuating circumstances; to be severely emotionally disturbed; to be compulsive; to lack insight; to be judged to be committable to a mental institution; to be judged to have a poor prognosis.

29. Offenders who tend to be excitable tend to have considerable feelings of hostility toward others and to have been convicted for previous non-sexual offenses.

30. Offenders who tend to have considerable hostility toward others tend to have been convicted of previous non-sexual offenses; to be excitable; to be severely emotionally disturbed; to have committed a major sex offense; and to be judged to have a poor prognosis.

31. Offenders who tend to be quite tense tend to include relatively few Negroes and to have considerable anxiety.

32. Offenders who tend to be compulsive tend to include relatively few Negroes; to have committed their offenses without extenuating circumstances; to have feelings of inadequacy; to be escapist or evasive; and to lack insight.

33. Offenders who tend to use alcohol to excess tend to be over 30 years of age; to have committed a major sex offense; and to have committed a deviational sex offense.

34. Offenders who tend to lack insight into their behavior tend to have committed a major sex offense; to have committed a deviational sex offense; to have committed their sex offense without extenuating circumstances; to be escapist or evasive; to have considerable anxiety; to be compulsive; to be severely emotionally disturbed; to be judged to be committable to a mental institution; and to be judged to have a poor prognosis.

35. Offenders who are severely emotionally disturbed tend to include relatively few Negroes; to have committed previous sex offenses; to have committed deviational sex offenses; to have committed their sex offense without extenuating circumstances; to be escapist or evasive; to lack insight; to have considerable hostility toward others; to be judged to be committable to a mental institution; and to be judged to have a poor prognosis.

36. Offenders who are judged to be committable to a mental institution tend to be over 30 years of age; to include relatively few Negroes; to have committed a deviational sex offense; to have committed their offense without extenuating circumstances; to have committed previous sex offenses; to be escapist or evasive; to lack insight; to be severely emotionally disturbed; and to be judged to have a poor prognosis.

37. Convicted sex offenders who are judged to have a poor prognosis tend to be over 30 years of age; to have below-average intelligence; to have committed a major sex offense; to have committed a deviational sex offense; to have committed their offense without extenuating circumstances; to be escapist or evasive; to lack insight; to have considerable feelings of hostility toward others; to be severely emotionally disturbed; and to be judged to be committable to a mental institution.

C. DISCUSSION

The first outstanding finding of this study appears to be that convicted sex offenders who are Negro tend to be radically different from those who are white. Whereas the white offender tends to be a severely emotionally disturbed individual, with several serious psychiatric symptoms, the con-

victed Negro offender tends to be undisturbed emotionally, to be socially adjusted, to be young, to be a non-deviational offender, and to have committed his sex offense under extenuating circumstances. One of the main reasons for this difference lies in the fact that a good many of the Negroes are convicted for statutory rape, while relatively few whites are convicted on this charge. Statutory rape, or having sexual intercourse with girls below the age of consent, appears to be virtually a normal and expected part of the culture of many New Jersey Negroes; while it is less accepted among whites.

Even in the case of other sex offenses, moreover, including deviational offenses like homosexuality and exhibitionism, the Negro culture appears to look upon these acts with much more equanimity than does the white culture; with the result that Negroes who engage in them are less severely condemned by their associates, and consequently by themselves, than are whites. In consequence, Negro sex offenders frequently may have considerably less guilt, shame, and self-depreciation as concomitants of their sex offenses; and they may tend to become less emotionally disturbed in relation to them.

It may be wondered whether, because of their racial position and their relatively low economic status, Negroes are not more frequently arrested and convicted for sex offenses than are whites; and whether, in consequence, only the more seriously disturbed whites are finally convicted, while less disturbed Negroes have to pay relatively high legal penalties. Little supportive evidence in this connection could be gathered from the data of the investigation. What did, instead, seem to be more likely was that the white policemen, probation officers, and court personnel who came into contact with the convicted Negro sex offenders had relatively little understanding or appreciation of the differences between the white and the Negro sexual cultures; or, if they did have this understanding, they were hampered in effectively following it up by the rigidity of the white-dominated sex codes which they were trying to follow.

In other words: the data of this study would tend to raise the question of whether the single sex code that stands as the strict law of a State like that of New Jersey is, whatever its adequacy and justifiability for application to the majority of this State's population, just and non-discriminatory when it is equally applied to certain sub-segments of the population, like the Negroes, who in some respects have distinctly different cultural sex patterns. There is reason to believe that the State of New Jersey, in particular, has a relatively good record in its general handling of Negro-white relationships, and that consciously the courts of the State rarely discriminate against Negro suspects or offenders. Unconsciously, however, assuming that white and

Negro cultures do have some significant attitudinal and behavioral sex differences, it is difficult to see how the white-dominated courts could avoid discriminating against Negro sex offenders—as the facts of this study to some extent seem to show that they do.

The second major finding of this study is that individuals who, as it were, go out and commit sex offenses in cold blood, without extenuating circumstances, tend to be severely emotionally disturbed individuals; while those who commit such offenses with extenuating circumstances do not appear to be very disturbed. Evidently, the individual who, in our society, loses control of his sex impulses because he has been drinking too much, or because a girl has been quite coöperative, tends to be a fairly normal person who has, under reasonable provocation, acted in an ill-judged manner. But the individual who lets himself go sexually without extenuating circumstances, and who is rash enough to let himself go in such a manner that he comes to the attention of the court and is convicted of a definite sex offense, tends to be so disturbed that his lack of control is not merely temporary or sporadic, but is on a compulsive, repetitive basis.

The third interesting, and not unexpected, finding of the study is that young sex offenders tend to be by no means as emotionally disturbed or as hopeless as older offenders. This may simply be because young offenders are more apt to be first offenders, many of whom never again get into sexual difficulty with the law; while older offenders are more likely to include repeaters. Moreover, it was observed in examining the sex offenders studied that the older-aged group tended to include a sizeable number of psychotics, deteriorated seniles, and arteriosclerotic individuals, nearly all of whom were quite severely emotionally disturbed.

A fourth important finding of the study is that individuals who are convicted of deviational sex offenses—that is, of homosexuality, sex relations with a minor, exhibitory sex acts, and bestiality—tend to be severely emotionally disturbed persons who have a history of previous sex offenses, who commit their offenses without extenuating circumstances, who are in the older age group, and who are judged to have a poor prognosis. This does not mean, as some may be prone to conclude, that all sexual deviants, or even most of them, are necessarily psychiatrically disturbed individuals who will very likely continue to commit sex offenses. It does mean, however, that sexual deviants *who are rash enough in their behavior to get caught and convicted of a specific sex crime* are frequently exceptionally disturbed, severely neurotic, borderline psychotic, or organically deteriorated individuals who present a quite unfavorable prognosis and who may be judged to be committable in a mental institution.

A fifth notable finding of the present study is that major sex offenders, deviational offenders, and white offenders in general tend to be either severely emotionally disturbed or to have several distinct neurotic trends. Moreover, those offenders who are emotionally disturbed tend to have interlocking neurotic traits, rather than merely one or two outstanding ones. Here again, however, the temptation must be resisted to conclude that sex offenders in general—meaning, all individuals who break sex laws—are emotionally disturbed individuals: since the only offenders considered in this study are those who have been *apprehended and convicted* for breaking such laws. As has been well known for years, and as Kinsey, Pomeroy, and Martin (6) have lately pointed out, the great majority of technical sex offenders in the United States are never apprehended or convicted for breach of our sex statutes, and there is no reason to believe that the minority of offenders who are caught and convicted are in any degree representative of the majority who are not. The probability is, in fact, that emotional disturbance rates are quite high in convicted sex offenders because their psychiatric difficulties, leading to repetitive, compulsive, uncontrolled, and public sex acts actually constitute one of the main *causes* of their arrest and conviction. Less psychiatrically disturbed offenders, in all probability, often manage to commit equivalent offenses without being apprehended or convicted for them.

A sixth important finding of the study is that the psychological-psychiatric judgments which are being made under the New Jersey Sex Offender Act as to the committability of a convicted sex offender to a mental institution are not being made on any hasty, arbitrary basis, but are being made on the basis of clinical realism. For the convicted offenders who are being judged to be committable to a mental institution are generally older offenders who have committed previous sex offenses, who have committed deviational sex offenses, who have committed their offenses without extenuating circumstances, who are severely emotionally disturbed, who lack insight, and who are thought to have a poor prognosis. The two main criteria for commitment to a mental institution have apparently been (a) the offender's being an older and old-time sex criminal; and (b) his being a severely emotionally disturbed individual with a poor prognosis. Both social and psychiatric considerations appear to have been seriously taken into account in recommending these commitments.

It may be wondered, finally, why several of the variables—such as church attendance, school truancy, sociability, emotional deprivation in childhood, inhibited love and sex relationships, and masturbation guilt—did not show significant intercorrelations with any of the other variables. The answer

to this question is at least threefold: First of all, some of these variables, such as school truancy, probably have no significant relationship to convictions for sex offenses. Secondly, some of the variables, such as emotional deprivation in childhood, probably have a bimodal distribution, with some individuals tending to become convicted sex offenders partly because of their severe emotional deprivation during their childhood, and some other individuals tending to become offenders partly because of their over-protective emotional coddling during their childhood. Thirdly, some of the variables, such as masturbation guilt, are probably unconsciously experienced by virtually *all* the offenders, even though a psychological-psychiatric examination will reveal this guilt in *some* of them.

In the last analysis, while the findings of the present study of convicted sex offenders reveal some highly interesting and significant correlational data, the study is limited by the present unavailability of two major types of control groups: (a) a group of individuals convicted for non-sexual offenses who fall in the same general age, sex, socio-economic, and intellectual groupings as do these convicted sex offenders; and (b) a group of non-offenders who fall in the same general groupings. It is to be hoped that arrangements can soon be made for extending this study to include such kinds of control groups.

D. SUMMARY

A 100 per cent sample of 200 consecutively apprehended and convicted sex offenders was examined by means of psychological-psychiatric interviews and tests, and data were thus gathered on 37 relevant variables. These variables were tetrachorically intercorrelated and also tested by Chi-square analysis. The main significant findings were as follows:

1. Convicted sex offenders who were Negro tended to be quite different from white offenders in that they were significantly less emotionally disturbed, less deviant, better socially adjusted, younger, less alcoholic, and less amatively inhibited.

2. Offenders who committed their offenses without extenuating circumstances tended to be recidivists, to be sex deviants, to be severely emotionally disturbed, and to have a poor prognosis.

3. Offenders who were young tended to be non-alcoholic, to be sexually non-deviant, to have committed their offenses under extenuating circumstances, to be relatively free from severe emotional disturbance, and to have a favorable prognosis.

4. Offenders who were convicted of sexual deviations tended to be older individuals, to have histories of previous sex offenses, to commit their offenses

without extenuating circumstances, to be severely emotionally disturbed, and to have a poor prognosis.

5. White offenders, particularly those convicted of major or deviational offenses, tended not only to be severely emotionally disturbed, but to have several interlocking neurotic traits rather than merely one or two outstanding ones.

6. The psychological-psychiatric commitment of convicted sex offenders to a mental institution was done largely on the basis of committing offenders who were older, who had committed previous sex offenses, who had committed their offenses without extenuating circumstances, who were severely emotionally disturbed, who lacked insight, and who were thought to have a poor prognosis.

7. All the findings of this study apply only to sex offenders who are caught and convicted, and may have little or no relevance to the great number of Americans who technically violate sex statutes without ever being apprehended or convicted.

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THE RELATION OF OCCUPATIONAL TOLERANCE TO INTELLIGENCE AND SOCIAL AFFILIATION*

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A. PROBLEM AND PURPOSE.

The tolerance which people have for the followers of occupations other than their own would seem to be a matter of some social significance. Ego-involvement on the part of many persons with a wide range of occupational groups seemingly would tend, within itself, to reduce social friction; and to the extent that such occupational tolerance is a part of tolerance generally it would be of even broader import.

It is the purpose of this paper to report an investigation of the occupational tolerance of a group of college freshmen and to relate tolerance to their intelligence and to their social class affiliations.

Occupational tolerance, as it is defined here, means the acceptance into one's own social class of the followers of occupations from a wide socioeconomic range. It is measured, along with social class affiliation, by means of the writer's *SCI* Occupational Rating Scale. This scale consists of a list of 42 occupations which, in the opinion of the more than 600 judges used in constructing the scale, represent approximately equal steps along a social prestige continuum ranging from a garbage collector through such occupations as factory worker, railroad ticket agent, high school teacher, civil engineer, and surgeon, to a United States Ambassador. The testee is asked, among other things, to identify those occupations in the list whose followers belong to the same social class that he and his family does. Through simply counting the number of occupations identified as "the same" we have a measure of occupational tolerance; the greater the number of "same's" the greater the range of acceptance and, therefore, the tolerance.

The scale also yields a measure of the class *status* which the testee assigns himself. This score, which is called the *SCI* (social class identification) score, is arrived at by adding the number of occupations whose followers he thinks belong to a lower social class than himself to one-half of the number which he identifies as being of his own class. That is, the score represents the median position which he assigns himself along the prestige continuum;

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the higher the score, the higher the position assigned himself in the social hierarchy.

Thus the same instrument gives a quantitative description of occupational tolerance and of social class affiliation. The *SCI* scores have a possible range from zero to 42, and are interpreted by labeling succeeding score ranges as lower-working (1-6), working (7-12), working-middle (13-18), middle (19-24), upper-middle (25-30), upper (31-36), and upper-upper class (37-42). The possible range of tolerance scores, on the other hand, varies with the *SCI* score. Up to the midpoint of the scale, this relation is direct, the maximum possible tolerance score increasing two points for each increasing *SCI* score; from the midpoint to the upper limits of the Scale, the relation is inverse, the maximum possible tolerance score decreasing two points for each increasing *SCI* score.¹

B. PROCEDURE

This scale along with the *ACE* Psychological Examination, 1949 Edition, was administered to the entering freshman class at the University of Alabama in September, 1950, and the statistics reported here were calculated from samples of this population.

C. RESULTS

First of all, let us examine the distributions of scores on the three measures. The distribution of *ACE* scores for a random sample of 279 freshmen (every fourth student from an alphabetical list) was fairly symmetrical, had a mean of 98.0 and a standard deviation of 22.9. In terms of ability, the sample was, therefore, fairly typical of college freshmen generally. The distribution of *SCI* scores for the same group was skewed negatively, had a mean of 20.6, a median of 22.0, and a standard deviation of 5.3. In other words, the average freshman identified himself with the middle class but the population had a heavy loading from classes which we have labeled upper as compared with the working classes. The distribution of tolerance scores was also sharply skewed, but in the opposite direction. The mean score here was 16.1 the median 14.7. That is, the average freshman incorporated within his own social class somewhat more than one-third of the total range of occupations but there was a piling up of scores lower than this. Actually the modal score was 13. The standard deviation of this dis-

¹The construction and validation of the scale is described at length in the writer's *Manual for the SCI Occupational Rating Scale*. Yonkers-on-Hudson, New York: World Book Company, 1952.

tribution was 4.9. The skewness in these last two distributions was statistically significant to considerably more than the one per cent level of confidence.

The product-moment coefficients of correlation among the three measures were as follows: *ACE* scores with tolerance scores $-.035$, *SCI* scores with tolerance $-.112$, and *ACE* with *SCI* $+.237$.

The negative correlation between *SCI* score and tolerance was statistically significant to just under the five per cent level of confidence (.112 instead of .113), that between *ACE* and tolerance indicated only that in this population there was no relation between intelligence and occupational tolerance. The positive correlation between intelligence and social class affiliation although not high was statistically significant to well beyond the one per cent level.

Inspection of the scattergrams showed that there was clearly a straight-line relation between *ACE* and *SCI* scores, but the relation between tolerance and the other two variables appeared to be non-linear.² Since we had already found two of the distributions to be skewed, it seemed worthwhile to calculate correlation ratios for the regression of tolerance scores on *SCI* scores and on *ACE* scores. These coefficients were .318 and .209 respectively, both of which were statistically significant. Inspection showed that both were also negative.

D. DISCUSSION

From the above analysis, it appears that although the relation is not linear, occupational tolerance is negatively related to social class affiliation. To a lesser degree, tolerance seems to bear the same relation to intelligence. The nature of the distributions and of the relationships among the three variables, plus the fixed relation between the maximum possible tolerance scores and *SCI* scores, raises a question, however, as to whether correlations between the variables for a random sample of the population being studied is the most appropriate procedure for testing the relations among the variables. We have, therefore, approached the matter in yet another way.

Returning to the total freshmen population, we selected three groups of students as follows: (a) All cases having *SCI* scores of 13-17; a group which belonged, in the language of the scale, to the *working-middle* class, this being the class to which, in the opinions of the judges used in constructing the scale, people who follow occupations such as railroad ticket agent, telegraph

²Actually, application of Fisher's test of non-linearity indicated that in the case of tolerance score with *SCI* the departure from linearity had statistical significance beyond the one per cent level of confidence, but in the case of tolerance score with *ACE* the departure was too little for us to be sure that it was not the result of chance.

operator, bookkeeper for a store, and neighborhood grocery store owner-operator generally belong. (b) All cases having scores of 20-23; a group belonging to the class called *middle*, this in the opinions of the judges being the class to which people who follow occupations such as real estate salesman, high school teacher, druggist, and large farm owner-operator generally belong. (c) All cases having scores of 26-30; belonging to the class called *upper-middle*, this being the class to which follow occupations such as newspaper editor, minister, civil engineer, and United States Army colonel generally belong.³

That is, we selected three groups, each homogeneous within itself as to class affiliation and representing succeeding levels of affiliation, with the social distance between Groups 1 (working-middle) and 2 (middle) equal to the distance between Groups 2 (middle) and 3 (upper-middle). It will be observed, also, that Groups 1 and 3 are equidistant from the mid-point of the scale and consequently, have the same maximum possible tolerance score, that is, have the same possible range, while the maximum tolerance score possible for Group 2 (its possible range) is greater. For these three groups, we undertook to compare the differences in mean tolerance scores; and, for each group, the relation between tolerance and *ACE* scores.

Table 1 reports for the three groups the means of the tolerance scores and other statistics necessary for testing the significance of the differences

TABLE 1
MEAN DIFFERENCES IN TOLERANCE SCORES OF STUDENTS AFFILIATING WITH THREE
DIFFERENT SOCIAL CLASSES

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SD</i> error of <i>M</i>
Working-middle	260	17.34	7.35	.46
Middle	345	15.60	7.92	.43
Upper-middle	194	14.51	6.60	.47
Diff. WM-M		1.74		.63
Diff. WM-UM		2.83		.65
Diff. M-UM		1.09		.62

found among the means. It will be seen that students identifying themselves with the working-middle class showed greatest occupational tolerance; those identifying with the upper-middle showed the least. Those identifying with the middle class occupied an intermediate position in spite of the fact that tolerance scores for this class have a greater possible range. The mean differences between the working-middle and middle and between the working-

³Other social classes, upper and working, were too poorly represented in the population to justify including them.

middle and upper-middle have statistical significance to better than the one per cent level of confidence, that between the middle and upper-middle to somewhat less than the five per cent level, a t of 1.76 rather than 1.96. Again, then, we find occupational tolerance negatively related to class identification. (Incidentally, the reader will note, also, from the standard deviations reported in this table, that the upper-middle class affiliates are most homogeneous in attitude toward other occupational groups, while the greatest individual differences in attitude are to be found among those who associated themselves with the middle class.)

Finally, for these three groups, each homogeneous as to class affiliation, we ran product-moment correlations between tolerance and *ACE* scores. These coefficients were: for the working-middle class group $+.081$, for the middle class group $+.101$, and for the upper-middle class group $-.063$. All of these relations were straight-line; none of the coefficients had statistical significance. In other words, with class identification constant, the seeming relation between intelligence and occupational tolerance (as indicated by the correlation ratio of .209 reported above) disappears.

E. CONCLUSION

It seems safe to conclude, therefore, that in this population there is a negative relation between occupational tolerance and social class affiliation and little or no relation between tolerance and intellectual ability. Among these students, at least, occupational tolerance (acceptance into one's own social class of a wide range of occupational groups) is more apt to be a characteristic of the working-class affiliate than a mark of intellectual distinction.

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EXPERIMENTALLY CONTRASTED SOCIAL ATMOSPHERES IN GROUP PSYCHOTHERAPY WITH CHRONIC SCHIZOPHRENICS*

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A. THE PROBLEM

The investigation to be described represents an initial attempt to translate to the psychotherapeutic sphere principles drawn in part from the social psychological study of group dynamics. Two approaches in group psychotherapy commonly employed with schizophrenics were juxtaposed experimentally because they seemed to involve contrasting "authoritarian" (leader-centered) or "democratic" (group-centered) social atmospheres. These approaches were studied to determine their relative efficacy in developing patterns of interpersonal communication suggestive of adequate group formation, effective social intercourse, and potential therapeutic progress.

The experience of workers like Slavson (10), Klapman (6), Geller (5), and Wolf (12) has indicated the unique contribution of group psychotherapeutic procedures. By affording patients a broader social context in which to test the reality of perceptions and the effectiveness of their communications under relatively impunitive conditions the psychotherapy group becomes a controlled workshop in living. The patients can observe the parataxic distortions of others and reenact parental and sibling relationships themselves with the opportunity of withdrawing occasionally into the anonymity of the group when pressures are too great.

To the extent that schizophrenia represents a profound disturbance in interpersonal relationships and social communication as Sullivan (11) and Cameron (4) have suggested, several possible advantages of group psycho-

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¹Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

²A portion of this paper was read at the meeting of the Eastern Psychological Association, Atlantic City, 1952.

³The authors are indebted to Dr. Robert Hagood, Ward Physician, for his help in evaluating the patients' prognoses and for facilitating work done on his ward by the investigators.

therapy for such patients suggest themselves. Because of a basic ambivalence towards formation of close personal relationships the schizophrenic is prevented from learning important social techniques by means of identification with stable or consistent authority figures. With resultant failures in social communication his sense of isolation and low self-esteem are intensified and there is a spiralling in the direction of further withdrawal. The intimacy of individual therapy may aggravate this withdrawal by heightening the patient's anxiety through rearousal of fears associated with previous attempts at close relationships. In the therapy group, however, the diversity in personalities allows for identification and recognition of the commonality of difficulties. Some patients may feel less threatened by the opportunity to identify with a group rather than with a specific individual. This is a step beyond the intense isolation he has hitherto experienced. In the group many people, including the therapists, attempt to understand, communicate, and interact with the individual patient. Having made the initial step of developing a group identification and morale the patient's ego-strength may be sufficiently bolstered to permit him to attempt the more difficult and feared individual relationships.

The work of social psychologists in the area of group dynamics has suggested important methods for coping with the initial problem in group therapy, namely, welding a mere assemblage of patients into a group with a fair degree of morale. Technically, as defined by Krech and Crutchfield (7), a group must have a sharing of purposes and cognitions, and a continuity of structure based on mutual cohesiveness rather than external pressure. High morale is evidenced by a minimal level of divisive frictions, adaptability to change with resolution of internal conflicts, substantial amounts of positive feeling between members, and a positive attitude toward the objectives of the group, the leader, and the continuation of sessions. By contrast, observation of a large number of chronic schizophrenic patients assembled in a day-room reveals almost no interaction between patients but rather a tendency toward absorption in highly personalized rituals or autistic communication. The present study is an attempt to determine whether the methods and results of research in social group leadership are applicable to the problem of determining the optimal means of developing assemblages of schizophrenics into effective groups with high morale. More specifically, will operationally-defined "authoritarian" and "democratic" types of group leadership result in differing patterns of interpersonal relationships among chronic schizophrenics as they have been shown to do in non-therapeutic normal groups.

Previous studies such as those of Lewin, Lippitt, and White (9) have suggested the superiority of "democratic" over "authoritarian" methods of leadership in promoting group morale among normal persons. On the other hand, there is evidence from these same investigators and from research like the California studies of the "authoritarian personality" (1) that for certain emotionally-disturbed individuals a highly-structured situation is more conducive to good morale. Clinically, it has been observed often enough that well-structured ward routines under "benevolent authoritarian" leadership by aides and other ward personnel seem to result in better morale among schizophrenic patients. It is almost as if the schizophrenic, like a frightened child threatened by a terrifying and unknown outside world, gains a sense of security in the familiar and in knowing what is expected at all times.

There exists, therefore, a reasonable doubt as to the relative efficacy of the "authoritarian" and "democratic" methods of group leadership in developing assemblages of chronic schizophrenics into psychotherapy groups. Quite recently, Bovard's contrasting leader-centered and group-centered approaches (2, 3) made use of a didactic lecture course and a modification of Slavson's Interview Group Therapy in teaching psychology to college students. This author, working independently of the present investigators, found distinct influences of the two different group atmospheres upon behavior within the classes, upon perceptual performance outside the groups, and upon interpersonal affect. Using much the same rationale as Bovard in the choice of contrasting leadership situations, it was decided to employ two forms of group therapy actually in use in the treatment of schizophrenics. Analysis of the literature reveals that until recently, Klapman's Didactic Group Therapy (6) and similar techniques have been the most widely accepted methods employed with schizophrenics. Klapman's approach calls for a classroom atmosphere and rather formal lectures on various phases of mental hygiene. Since it requires a rather highly-structured situation and employs the therapist as a clear symbol of authority who dispenses important and fairly technical information concerning their problems to the patients, this didactic approach seems to be a suitable prototype for the "authoritarian" or leader-centered technique. It must be recognized, however, that the therapist is here a benevolent authority since he sympathetically and understandingly tries to help the patients through his lectures.

More recently, there has been increased use of a less formalized, analytically-oriented, patient-centered group therapy technique. The work of Slavson (10) and Geller (5) emphasizes group involvement to a greater degree. In this approach the therapist reflects group members' feelings and encourages

group participation in decisions and interpretations. This therapeutic approach lends itself to characterization as "democratic" or group-centered.

B. METHOD

1. *Subjects*

The population used in this study consisted of schizophrenic male veteran patients with a minimum of three years hospitalization. Initially 30 patients from one locked ward of the Continued Treatment Service were randomly assigned to one of three groups, each consisting of 10 patients. These groups were designated as Groups *A* ("authoritarian" leadership), *B* ("democratic" leadership), *C* (control, untreated). Group *C* will not be discussed in this paper. The patients in the groups included all types of schizophrenics although all had paranoid features. After randomization there was no significant difference between groups in either age or type of diagnosis. The average age was 37. The patients were all rated by the experimenters for therapeutic prognosis on a five-point scale. These ratings were based on an examination of case histories using criteria such as age at onset of illness, duration of illness, outcome of previous therapies, type of thinking disorders, and difficulties in communication. The experimenters' ratings were compared with evaluations made by the ward psychiatrist of the patients' prognosis based upon his clinical judgment. Agreements were extremely close. Since there was no significant difference between the mean prognostic ratings for the two groups, it was assumed that the two sets of patients were roughly equated with respect to type, duration, and severity of pathology.

2. *Procedure*

The two contrasting social atmospheres for the therapy groups were established in the following manner:

a. *Group A* ("authoritarian"): Patients assigned to this group were interviewed by the therapists who followed a prepared statement and informed the patient that he was assigned to a therapy group. The patients' opinions were not asked nor were they given any choice as to hour, day, or other features. The patients were brought to the therapy room by aides. The roll was taken and patients were assigned to seats. The physical structure of the treatment room was set up like that of a lecture hall with a speaker's table and balanced rows of seats. A blackboard was present for the lecturer's use. The two therapists were always present alternating in presenting the lectures. While one therapist spoke, the other recorded all comments and actions except for minor restless movements made by the patients. At the close of a

30-minute period, the lecturer asked for discussion. The therapists followed as closely as possible the rôle definitions presented in Krech and Crutchfield (7, p. 427).

The specific content of lectures was drawn in part from Klapman's recommended series (6). They included such topics as "Objectives of Class-work," "The Nature of Mental Illness," "Mental Mechanisms" and so on. These lectures were carefully outlined and followed as closely as possible with only minimal opportunity for the group to change the continuity. The therapist at all times strove to maintain a serious and earnest approach to the subject matter despite the frequently bizarre comments or behavior on the part of group members.

b. Group B ("democratic"). Patients assigned to this group were interviewed by the therapists who followed a prepared statement outlining in detail the objectives of treatment and encouraging the patient to express his opinion concerning these objectives. The patient was given a choice of joining the group or not. All patients agreed that the hour was convenient. They could not be given a choice in the selection of group members.

The patients for Group B were also conducted to the therapy room by an aide. The physical structure of the room was markedly altered from that employed for Group A. The blackboard was removed and seats were arranged in a circle with no fixed seating plan. Roll was not taken. The therapists greeted each patient individually as he entered the treatment room. The therapists alternated in recording the sessions. Although one was generally absorbed in taking notes both sat in the circle amid the patients and participated in the discussion to a moderate degree. The therapists encouraged patients to discuss personal problems, asked them clarifying questions, reflected feelings, and, whenever possible, attempted to interpret unclear statements for the group. Patients were also encouraged to interpret for each other. Whenever possible decisions were referred to the group. The therapists adopted an attentive attitude but avoided encouraging overly personalized, bizarre comments by patients. Rôle definitions were patterned on those summarized in Krech and Crutchfield (7, p. 427).

The two groups met over a five-month period. The data available are based on 16 weekly sessions during this period.

3. *Treatment of the Data*

After carefully defining various aspects of communication and action on the basis of criteria such as relevance and direction, the two experimenters independently rated all interactions of both groups. Since there was a very

high degree of agreement these ratings were pooled for quantitative analysis. Qualitative indices included were the patients' interest in prolonging individual sessions, desire to continue the therapy, emerging friendship patterns, the extent to which material related to personal problems and emotional reactions was brought up in group sessions, and, finally, personal reactions of the therapists as to the progress of the groups.

C. RESULTS

The general trend of the data based on ratings of the protocols supported the hypothesis that the two types of group leadership would result in different kinds of group structure. Results are summarized in Tables 1 and 2. Thus, as might be anticipated, Group *B* was far more productive in comments

TABLE 1
A COMPARISON OF THE QUANTITY AND DIRECTION OF PATIENT INTERACTION IN GROUPS *A* ("AUTHORITARIAN") AND *B* ("DEMOCRATIC")

A. Overall interaction	
1. Total number of comments	$B > A^*$
2. Total number of actions	$B > A$
B. Direction of interaction	
1. The proportion of total comments which were directed at therapists	$A > B$
2. The proportion of total comments directed at other patients	$B > A^*$
3. The proportion of total comments that were undirected	$B > A$
4. The proportion of total actions directed at therapists	$B = A$
5. The proportion of total actions which were directed at other patients	$B > A^*$
6. The proportion of total actions which were undirected	$A = B$

*Significant at the .05 level.

TABLE 2
A COMPARISON OF THE RELEVANCE OF PATIENT INTERACTION IN GROUPS *A* ("AUTHORITARIAN") AND *B* ("DEMOCRATIC")

1. The proportion of total comments that were relevant	$A > B^*$
2. The proportion of total comments which were relevant and directed at therapists	$A > B$
3. The proportion of total comments which were relevant and directed at other patients	$A > B$
4. The proportion of total comments which were relevant but undirected	$A = B$
5. The proportion of total actions which were relevant	$B > A^*$
6. The proportion of total actions which were relevant and directed at therapists	$B = A$
7. The proportion of total actions which were relevant and directed at other patients	$B > A$
8. The proportion of total actions which were relevant but undirected	$B > A^*$

*Significant at the .05 level.

and questions by patients. While part of this difference in the number of interpersonal communications was a function of the length of the formal lecture in Group *A*, it was apparent that there was greater spontaneity and desire for interchange elicited by the "democratic" group atmosphere. The patients in Group *B* showed much more verbalization and coöperative action directed either at the therapists or at other group members.

If the data are broken down to consider the proportion of comments and actions directed to therapists as against the proportion directed to other group members, it is again apparent that the two types of therapeutic leadership yield different group structures. Proportionately almost twice as many comments by the patients in Group *B* were directed at other patients as compared with Group *A*. These data indicate that the leader-centered structure was in fact operative. Patients in Group *A* tended to direct very few comments to each other; they focussed attention on the therapists and related very little to the group as a whole. It should be noted, however, that even in Group *B*, the majority of comments were still directed at the therapists despite their effort to maintain a group-centered atmosphere. This is understandable in view of the fact that the patients, as schizophrenics, were a rather dependent group and, in addition, were accustomed to a fairly authoritarian type of ward management. Nevertheless in both actions and comments Group *B* patients showed comparatively more interaction with other group members.

These data point, therefore, to divergent patterns of communication (verbal or otherwise) occasioned by the two types of group therapy leadership. To test the relative effectiveness of the two approaches we may next consider the extent to which the communications in the group were socially appropriate, relevant to the discussion at hand, and comprehensible. Verbalization that was relevant only when interpreted symbolically was thus excluded. Group *A* proved to be significantly more relevant in all comments than was Group *B*. However, no significant difference was found between the groups in the relevance of comments directed to group members other than the therapists.

Analysis of the non-verbal action patterns presents a very different picture. In this area, the "democratic" group produced a much greater number of relevant actions directed toward fellow group members. In addition, when self initiated actions not specifically directed at other patients are considered, Group *B* shows a markedly greater proportion of relevance in its behavior than does Group *A*. More concretely, the non-verbal behavior of patients in Group *A* was characterized by much more highly personalized, ritualistic behavior or by childish mischievousness than that of Group *B*. Here, actions

were expressions of greater socially appropriate initiative, e.g., cleaning ashes off the rug, moving an ash tray to the center of the room, or putting out another's burning cigarette in the ash tray.

In summary, overall relevance of language behavior somewhat favors Group *A*, while the non-verbal behavior of patients does suggest a greater appropriateness for those in Group *B*. The tendency for somewhat mischievous behavior by the patients in the "authoritarian" group is in keeping with findings of Lewin, Lippitt, and White (9) who observed that the somewhat repressive atmosphere of an "authoritarian" setting led in some boys' groups to a heightened level of aggressive and destructive play. Thus, in the somewhat free, less structured atmosphere of the "democratic" group, the patients were able to discharge tensions for motor activity without a sense of disturbing the group structure. The result was an increased number of cooperative and socially relevant actions. Patients in Group *A*, however, did not feel it was safe to interact or to move around freely and generally inhibited cooperative actions. Although the patients in Group *A* were far more compliant in their attitudes toward the therapist, the emergence of sudden, inappropriate and sometimes mischievous behavior, points to a combination of an inhibited need for expression and a lack of positive identification with the group.

Although the gross measure of relevance of comments favors Group *A* to some degree, a very important finding evolves when this variable is considered along a time dimension. Analyzing the relevance of all comments within the groups, session by session, divergent patterns emerge with the passage of time. Figure 1 presents, in graphic form, the percentages of the total comments that were relevant for the two halves of the experimental 16-week period. It is apparent from this graph that the "authoritarian" group is initially much more relevant in their verbal communications. As time passes, the "democratic" group shows a very definite increase in the relevance of their comments. The "authoritarian" group on the other hand, after an originally high level of relevant comments, falls off rather strikingly. This same trend is clearly apparent in the case of comments directed at the therapists and, somewhat less clearly, in the relevance of comments directed to other group members. In the latter case the communications of the "democratic" group patients were consistently more relevant when directed at other patients, increasing somewhat in this respect with the passage of time.

These results lend quantitative amplification to the therapists' very marked qualitative impression. It seems clear that early in the course of the sessions the patients in the "authoritarian" group were much more relevant and

appropriate in their comments. This observation was in marked contrast with the early sessions of the "democratic" group where patient after patient verbalized at great length in a highly autistic, confused manner that was largely ineffective in terms of communication. The therapists for example, emerged

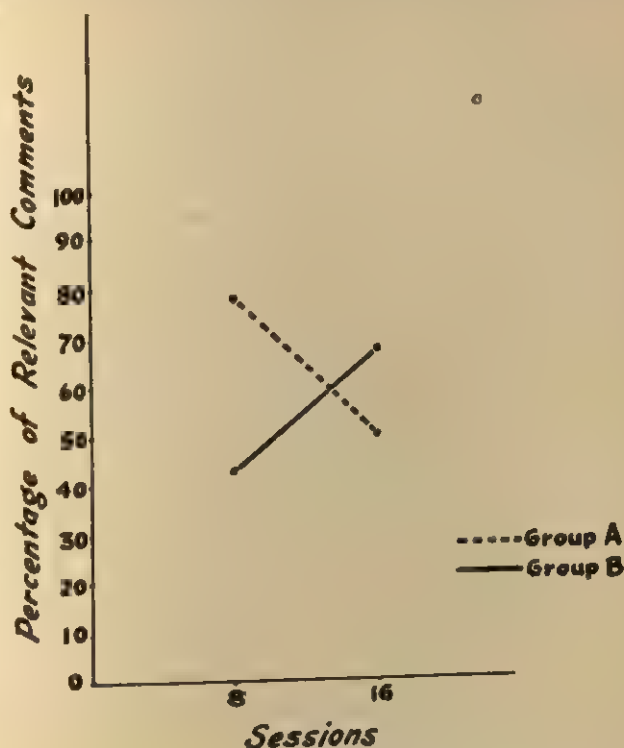


FIGURE 1
MEAN PERCENTAGE OF RELEVANT COMMENTS BY PATIENTS IN "AUTHORITARIAN" (A)
AND "DEMOCRATIC" (B) GROUPS FOR THE TWO HALVES OF THE 16-WEEK PERIOD

from the initial sessions of Group B with the sense that they had been caught up in a kind of dream world where 10 individuals sat around talking at great length in highly personalized, symbolic languages that precluded any communication between individuals. Certainly, any feeling that this assemblage might become a group was lacking. The impression presented by the contrasting groups was almost as if the patients, despite the careful randomization in assignments to groups, differed markedly in degree of illness.

In view of this very noticeable difference during early phases of treatment,

the subsequent pattern of group development was even more striking. After the first eight sessions, despite continued efforts on the part of the therapists to maintain a high interest-level in the lectures and subsequent discussion periods, the Group *A* members, although still superficially compliant, showed an increase in apathy, in autistic and irrelevant verbalization¹, and in the type of undirected, somewhat mischievous activity already described. Patients in Group *B*, however, gradually showed a greater amount of interaction within the group as well as a definite increase in the relevance of their comments. They began to communicate more directly with each other and with the therapists. In their increasing desire to communicate much of the patients' overly abstract or personally symbolic verbiage seemed to be shed and conversation took on more of the characteristics found in a typical group psychotherapy session with neurotic patients. Certain patients, one in particular, did not participate in this group trend and the quantitative data would have been more clear cut had the recurrent bizarre and undirected verbalizations and actions of this patient been omitted from the analysis.

The divergent paths followed by the groups were also evidenced by the therapeutic meaningfulness of the material presented. From a qualitative viewpoint the nature of the problems raised by patients in Group *B* reflected deeper emotional involvement and more intense, if abortive, efforts at discussing personal difficulties than was apparent in Group *A*. The patients in the latter group focussed too easily on the intellectual content of the lecture material. Thus, a distinct disadvantage of the didactic group therapy was apparent in its affording the patients a means of evasion of personal difficulties by concern with general problems. Although initially this helped some patients overcome their fears in social situations and permitted a high degree of relevant and comprehensible comment, the long term effect seemed to be a gradual decline in therapeutic interest.

Thus far, discussion of results has turned largely on evidence of group interaction and its relevance. Other signs of morale may be mentioned briefly. At the close of the experimental period when patients were asked what they thought about continuing the group, patients in Group *A* showed no interest compared with a definite desire for further sessions on the part of Group *B* patients. When the individual sessions are considered, it was apparent that patients in Group *B* were more desirous of prolonging a given meeting. This attitude prevailed somewhat in the earlier sessions of Group *A* but declined fairly rapidly in the latter phase of the experimental period. Another indication of at least incipient group morale in Group *B* emerged in reactions of patients to a sociometric questionnaire. Despite difficulties in obtaining

coöperation from some more regressed patients, the data suggest that Group *B* patients showed more friendship patterns than did Group *A* patients who showed very little sign of desiring relationships with other group members or even other ward patients. Although little use was made of sociometric criteria in this specific project it seems important to note that such an approach may lead to a potentially fruitful avenue for further exploration.

A final result of this study was the qualitative impression received by the therapists that certain patients, for reasons based on personal dynamics, responded better to one approach than to the other. Thus, despite the common diagnostic label and even in many cases common psychiatric symptoms, the patients still showed basic characterological differences that predisposed them to different responses to the group structure. For some patients the freedom of the "democratic" structure was quite threatening and led to increased bizarreness in language or in withdrawal from the group. For some patients the "authoritarian" structure was too confining and prevented them from as free a presentation of their problems as they would have liked. These impressions suggest the conclusion that where possible, patients should be screened for particular tendencies of this sort before assignment to therapy groups.

D. DISCUSSION

Although the implications of these results are necessarily tentative because of the limited scope of the present investigation, a formulation of the group process with schizophrenics will be attempted.

It appears that the Didactic Group Therapy approach as employed here has relatively little long-term therapeutic value. Its primary contribution is in its affording the chronic schizophrenic some fairly palpable structure which he can use in developing a higher level of effectiveness in communication in the early stages of treatment. Dealing with external problems of a fairly general nature the schizophrenic is able to communicate with some degree of relevance within the narrow scope of the session. This very advantage appears in the long run to be self-defeating, however. The individual patient received little opportunity to bring up his more personal feelings and problems with impunity in the group setting. As a matter of fact, when the patient did try to raise personal material in his fearful, inhibited manner, his initial failures stood out more glaring in the highly defined "authoritarian" setting. Thus, after the early incentive for attempting interpersonal contacts wore off, the patients received little further satisfaction from the group or from the relatively impersonal, distant, "authoritarian" leader. By contrast,

in the "democratic" group the members, initially eager for help, were in the early stages overwhelmed by their failure to communicate with the therapists or with other patients. There was, if anything, a decline in organization and interest. The therapists persisted in their sincere efforts to understand the patients. Whenever possible, they would attempt to convey to the patients their respect of them as individuals despite the obscurity of their communications. In this way the patients, feeling accepted and therefore less threatened, were able to lower their defensive barriers and attempt to form a freer relationship with the group. Whereas the "authoritarian" therapists, interested though they were, persisted in dealing with impersonal, somewhat abstract material, the "democratic" therapists were more flexible in attempting to follow the patients verbalizations or in encouraging interest in his problems on the part of the group. This served a double purpose in giving the patient an opportunity to relate not only more easily to the therapist but to other group members as well. The "authoritarian" structuring failed in the long run both because it led to identifications only with the therapist and not with the group, and because it gave no real emotional acceptance and support. The group dynamics of heightened morale did not emerge as easily in the "authoritarian" structuring and hence there was a falling away from, rather than an increase in a common mode of communication and perception for group members.

It seems possible, therefore, to infer from these results an important general principle for use in group therapy with chronic schizophrenics. *Clear structuring even to the extent of formal but kindly orientation lectures may be a very important initial phase of treatment. By affording the patients a situation in which they are only gradually forced to assume responsibility for self-expression and relevance of personal communication, the initial ambivalence and frustrations of the schizophrenic in interpersonal situations may be eased.* Thus, a fairly "authoritarian" attitude at the outset may enhance the security of the patients and may encourage them to commit themselves in speech before the group without fear of being misunderstood. *Once a pattern of fairly relevant, if limited, verbalization has been established it is important for the therapist to increase the opportunities for group participation gradually and to give up his rôle as a structuring figure.* Encouraging intragroup response at this period should lead to an increased identification with the group as a group and a feeling of belongingness and of ability to communicate socially. Thus, it may take the patients somewhat longer to discuss highly personal material but possibly when they do there will be a higher morale and a more common means of communication. At this point,

the therapeutic approach can more closely approximate that used in interview group therapy with neurotics.

Subsequent experience with another chronic schizophrenic group in which an attempt at following these general principles was made has supported these conclusions. Excellent therapeutic results were obtained in a group where an initial structuring was gradually relaxed and greater group participation encouraged. Any final conclusions must of course depend on further systematic research on the nature of the therapeutic process with chronic schizophrenic groups.

In addition to the implications of the present investigation for group therapy, a final word may be said for the value of attempting an integration of social group dynamics and psychopathological research. The results of this investigation with chronic schizophrenics, human beings who represent extreme cases of asocial behavior, are generally in keeping with the findings of other investigators in the field of group dynamics. The pattern of behavior in Groups *A* and *B* showed, for example, many similarities to that described by Bovard (2, 3) in connection with his research on "group and leader-centered" approaches with normal subjects. Additional applications of social psychological techniques such as sociometric studies of ward life, greater opportunities for patient self-government, and studies of the communication process seem warranted as methods for improving the possibilities of better interpersonal relationships within the hospital situation. Research of this sort may, in addition, raise important hypotheses concerning the more general problems of social psychology.

E. SUMMARY AND CONCLUSIONS

1. This study represented an initial attempt to translate principles and methodology of social psychological group dynamics to the psychotherapeutic sphere, specifically to work with schizophrenics. Research with normal groups had suggested striking differences in the development of group morale with "democratic" (group-centered) or "authoritarian" (leader-centered) social atmospheres. It was felt that similarly contrasted types of therapeutic leadership would yield divergent patterns of development in communication and action with groups of chronic schizophrenics.

2. The subjects were 20 chronic, locked ward schizophrenics randomly assigned to "authoritarian" or "democratic" psychotherapy groups. At the outset, the two groups of 10 did not differ significantly in age, diagnoses, and prognostic ratings.

3. Groups met weekly for therapeutic sessions over a five-month period.

The "authoritarian" group, modelled on Klapman's Didactic Group Therapy, was conducted in classroom atmosphere with lectures. The "democratic" group was based on Slavson's Interview Group Therapy with therapists encouraging free expression and group participation in decisions and interpretations. Social psychological criteria were employed to develop contrasting psychological atmospheres even to the extent of rearranging the physical structure of the treatment room. Evaluative data were obtained through qualitative criteria of group cohesiveness and through quantitative analysis of the protocols for amount, relevance, and direction of interpersonal communications expressed in language and action.

4. Results indicated that despite an initially greater proportion of relevant comments by patients, the "authoritarian" group declined sharply in this respect in latter sessions. The "democratic" group, although initially less relevant and more disorganized in their communications, surpassed the "authoritarian" group as time passed. In general, in both actions and verbalization, the "democratic" group evidenced signs of higher morale and greater cohesiveness.

5. Implications of the study, although tentative, are that therapeutic progress with schizophrenic groups may be optimal when the group situation is initially highly structured with a gradual increase in a group-centered type of leadership. Extensive application of techniques and theory drawn from the sphere of group dynamics and social research seems called for in order to refine and extend treatment methods with chronic schizophrenic patients.

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LEBANESE STEREOTYPES OF AMERICA AS REVEALED BY THE SENTENCE COMPLETION TECHNIQUE*

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A. THE PROBLEM

The most widely used technique in the study of stereotypes has been that of Katz and Braly (3), which involves asking subjects to select from a long list those adjectives which are typical of certain national groups. Eysenck and Crown (1) have objected to this approach on grounds that it asks subjects to perform an impossible task. A majority of their subjects demurred when asked to describe a "typical" Chinese or Turk, as did many of Gilbert's subjects (2). Some of the Arab subjects of Prothro and Melikian (5) seem to have resolved this difficulty by describing group or national characteristics rather than individual traits. Thus Turks were called *oppressive* and Americans *industrial*.

The study of stereotypes of nations, rather than of typical individuals, is of value in an examination of causes of international tensions, and it avoids the difficulties inherent in the Katz and Braly approach. A simple method for studying opinions about nations, and one which permits great latitude of response, is the sentence completion method. Klineberg (4, pp. 108-110) has described an unpublished study by Marie Jahoda in which she asked young people of England, Germany, and France to complete the sentence "America is a country where . . ." The results of her investigation not only furnished information on what others think of America, but seemed to reveal facts about the respondents themselves. In this way the incomplete sentence served as a projective technique.

In this investigation we have used the sentence completion technique with young people of a Near Eastern country, so that comparisons might be made with the European subjects. It was also possible to compare results obtained by this technique with those obtained in a previous study (5) which utilized the Katz and Braly method.

B. PROCEDURE¹

One hundred four Lebanese girls were asked to complete in five different ways the sentence "America is a country where . . ." They were all students

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¹The author wishes to express his appreciation to Miss Adele Hamdan for invaluable assistance in gathering these data.

at a British-supported missionary school. The educational level was roughly that of an American high school. The age range was from 13 to 18 years, with a median at slightly more than 15. Sixty-two were Christians, 40 were Moslems, and two were Jewish.

C. RESULTS

A summary of responses is presented in Table 1. It will be noted that not all of the subjects completed the sentence in five different ways. As far as could be ascertained from the responses, all of the subjects understood "America" to mean the United States.

TABLE 1
CHARACTERISTICS OF AMERICA LISTED BY 104 LEBANESE GIRLS (SHOWING NUMBER OF STUDENTS LISTING EACH CHARACTERISTIC)

Characteristics listed	Senior High School (56 students)	Junior High School (48 students)	Total (104 students)
Highly industrialized commercial	29	33	62
Individual freedom (especially for youth)	30	17	47
Rich, strong, large	8	37	45
High educational standards, many schools	21	19	40
Civilized	7	28	35
People hard-working; much employment	21	13	34
Equal rights of women	9	15	24
People comfortable and happy	15	9	24
Many large and tall buildings	9	11	20
Hollywood (beautiful actresses, etc.)	12	7	19
People ambitious, clever, frank, etc.	8	10	18
Center of immigration (including visiting students)	17	0	17
Natural beauty; scenic	4	8	12
<i>Total favorable items</i>	<i>201</i>	<i>214</i>	<i>415</i>
People selfish and planning war	9	3	12
Jews and Israel influential	4	1	5
Negroes not treated equally	4	0	4
Imperialistic	0	2	2
<i>Total unfavorable items</i>	<i>17</i>	<i>6</i>	<i>23</i>
<i>Number of characteristics listed</i>	<i>218</i>	<i>220</i>	<i>428</i>

The characteristic of America most frequently noted was the high degree of industrialization. This was sometimes expressed as "huge production," or "commercially advanced." It is interesting to note that our subjects here resembled the French and German children. Moreover, Lebanese university students have been shown (5) to have a stereotype of Americans in which the adjectives "rich" and "industrial" are the most frequently mentioned. Apparently this aspect of America is one of the best known in both Europe and the Near East.

Aspects of personal freedom receive considerable emphasis by our subjects. If we were to combine the categories which we have called "individual freedom" and "equal rights of women" then this area would be the most frequently mentioned of all. The frequency with which our subjects mentioned the freedom enjoyed by young people in America reflects the comparatively restricted life of these people in the Near East. The younger girls seem to be more conscious of the problem of equal rights for women than do the older girls. Women play a subordinate rôle in the Arab world. Lebanese women, for example, do not have voting privileges^c and are discriminated against by the inheritance laws. Apparently the older girls have come to accept this state of affairs to a greater extent than have the younger girls. Some insight into cultural similarities can be obtained from the fact that Jahoda's subjects commented on individual freedom in America, including that of youth, but did not mention the absence of sex discrimination.

Education in the United States is listed quite often by the Lebanese girls, although the European girls did not remark on it. Thirty-five girls mentioned the high standards of education, many good schools, large universities, etc. Some of those who mentioned that people like to emigrate to America, referred to the seeking of "work and education." It seems clear that America's educational system receives more favorable attention in the Near East than in Europe.

There is no way of knowing to what extent the motion picture has contributed to the views expressed here. However, 19 of the girls specifically mentioned that they thought of aspects of Hollywood when thinking of America.

The unfavorable items in Table 1 seem to reflect current events to a considerable extent. Propaganda directed against America usually stresses the Negro question, imperialism, and the atom bomb. Four of the girls specifically mentioned the atom bomb in connection with the warlike aspect of the American people. The mention of the Jews and Israel is related to the Palestinian controversy, and the generally accepted belief that American influence in the United Nations was responsible for the Arab defeat.

The older girls made more unfavorable comments than did the younger girls. If we compute chi-square for a 2×2 table (Senior High vs. Junior High; favorable items vs. unfavorable items), we find that the value is 5.7, which is significant at the two per cent level. Thus we can be reasonably certain that the tendency for the more advanced students to hold more unfavorable attitudes is not simply a chance one. Of course the favorable items outnumber the unfavorable ones 10 to one even among the students of Senior High School.

The more advanced students also selected more specific characteristics than did the others. They emphasized such items as freedom and full employment, while the less advanced students listed such words as large, civilized, rich, and strong. This difference in sentence completion technique is probably a reflection of differences in intellectual maturity.

In general the picture of America held by these girls is similar to that held by the European, particularly the French, subjects of Jahoda. Indeed it is not unlike the picture which Americans themselves might present. Our results fit perfectly with Klineberg's statement regarding the European study (4, p. 110): "One has the impression from looking over the sentence completions that the majority of children do not make strikingly erroneous judgments . . . they do suggest interesting differences in the ways in which children of different nationalities respond to the same objective task."

D. SUMMARY

A group of 104 Lebanese high school girls were asked to complete in five different ways the sentence "America is a country where . . ." The responses emphasized the industrialization, individual freedom, educational opportunities, and general strength of the United States. Unfavorable comments were rare, but occurred more frequently in the advanced classes. In their comments on freedom of youth, equality of women, and educational opportunities, these girls revealed significant problems which exist in their own nation. The sentence completion technique appears to offer promise as an instrument of research in international tensions.

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THE INFLUENCE OF CONTEXTUAL AND GOAL CONSTRAINTS ON THE MEANINGFULNESS OF "AUTOMATIC SENTENCES"*

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A. INTRODUCTION AND METHOD

In a recent study, Miller and Selfridge (1) described the construction of verbal materials which would approximate the "statistical structure" of English in varying contexts. "Statistical structure" refers to the elaborate complex of dependent probabilities of occurrence of particular words in the context of other words. Their rationale for the technique is:

In theory the construction of materials to incorporate the statistical structure of English over sequences of several words requires the tabulation of the relative frequency of such responses. Such a tabulation would be exceedingly long and tedious to compile. An alternative method of construction is available, however, which makes the procedure practicable. Instead of drawing each successive word from a different statistical distribution indicated by the preceding words, we draw the word from a different person who has seen the preceding words.¹

Miller and Selfridge varied the "order-of-approximation" to the statistical structure of English to study the effect of such variation on ability of S's to recall the constructed materials. The present study is not concerned with learning or retention. Rather, it represents a methodological innovation which, it is hoped, will be useful in a host of psychological problems concerned with communication. Briefly, the relative "meaningfulness" of materials used by Miller and Selfridge is given operational definition, certain parameters of the construction process are suggested, and these parameters are varied in an empirical study to ascertain their influence on "meaningfulness."

These verbal constructions will be called *automatic sentences*. An example

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¹Miller and Selfridge's description was accepted for publication on August 30, 1949. A description of the method of construction is given also in Coupling, J. J., Chance remarks, *Astounding Science Fiction*, 1949, 44, 104-111.

of the method of construction may clarify what is to follow. *E* chooses at random a word-group, say, "where the." Using this as a *stimulus*, he asks *S* to use these words in a sentence, consecutively and in the order given. *S* might supply, "That is *where the tree* was." The stimulus has been italicized, and the word used by *S* following the stimulus has been italicized and underlined. *E* discards the first word of the stimulus used for *S*₁ and adds the italicized-underlined word to make a new stimulus—in this case, "the tree." With this second stimulus, *S*₂ might provide, "*The tree grew* tall." Again discarding the first word of the stimulus and adding the first word used following the stimulus, the procedure is continued with additional *S*'s. Extended to 10 *S*'s, the results might be:

That is *where the tree* was.

The tree grew tall.

A *tree grew* in Brooklyn.

The flower *grew in a* pot.

He was *in a good* mood.

A *good time* was had by all.

It was a *good time to* go.

What is the best *time to appear*?

I wish *to appear older*.

Appear older if you can.

The automatic sentence derived from the example is the sequence of italicized underlined words. It is, "tree grew in a good time to appear older if." Admittedly, this is not "meaningful" in the ordinary sense.² Most of us could agree, however, that it is more meaningful than the gibberish, "so hot potato tree here well lillies can automobile tack." It is our task to find an unambiguous index which will discriminate these "meaningfulnesses."

We note that, in our derived automatic sentence, any pair of consecutive words was at one time part of a meaningful sentence used by some *S*. There are longer segments which could be taken from the automatic sentence and embedded in a sentence which is meaningful in the usual sense. For example, the last seven words of the automatic sentence may be used as a unit in the meaningful sentence, "This is a good time to appear older if you want to get the job." It is doubtful whether the example of gibberish given previously is amenable to the same treatment. This distinction is the clue to the quantification of relative meaningfulness.

²For the "ordinary sense," we may adopt the dictionary definition for a sentence: "A combination of words which is complete as expressing a thought . . . a sense unit comprising a subject and predicate."

1. Definitions

The index of *relative meaningfulness* of an automatic sentence is defined as the number of meaningful segments of a specified length (pairs, triplets, quadruplets, etc., of consecutive words) which it contains.

A *segment* is a sequence of consecutive words drawn from an automatic sentence.

A *meaningful segment* is a *segment* which a group of judges unanimously, independently, is able to use, as is, in some sentence meaningful to the members of the group.

The set of definitions given above comprises the description of the dependent variable for this study. Before the independent variables can be described, a bit of theory is necessary.

If we refer again to the examples of an automatic sentence and the gibberish previously given, we might say that the former is relatively more meaningful in the sense that it has an "on-going" quality which is discernible in the exemplified generation of the automatic sentence. Now inasmuch as each word of the automatic sentence has been contributed by a separate *S* who is unaware of the contributions of other *S*'s, the ongoing quality must be a function of whatever *common* constraints are operating when individual *S*'s are making their contributions. Two (many are possible) such constraints are proposed here. One is in terms of the length-in-words of the stimulus used; the other is in terms of the task set for the *S*. These are defined formally as follows:

The degree of *contextual constraint* is the number of words given to an *S* as a stimulus in the generation of an automatic sentence. The number is constant for a given automatic sentence. Thus, in the example automatic sentence, the 2nd degree of contextual constraint is used, since two words comprise the stimulus for each *S*. Parenthetically, our 2nd degree of contextual constraint corresponds to the 3rd order of approximation of Miller and Selfridge.

The index of *goal constraint* is categorical and qualitative. Depending on the purpose which *E* wishes to accomplish, various goal constraints are possible. In this study, three degrees of goal constraint are used.

Low goal constraint is defined as the instruction, "Give me a word that goes with (here follows the stimulus) . . ."

Medium goal constraint is defined as the instruction, "Give me a sentence containing (in order) the following word(s) . . . (the stimulus is inserted here). . . . Do not end the sentence with this (these) word(s)."

High goal constraint is defined as the instruction, "Give me a sentence on the topic of . . . (here a topic is inserted) . . . using (in order) the following word(s) . . . (the stimulus is inserted here) . . . Do not end the sentence with this (these) word(s)."

The definitions of the goal and contextual constraints comprise the *independent* variables of the study.

It is predicted that increasing *contextual constraint* (low to high degree) and/or increasing *goal constraint* (low to high degree) will result in increased *relative meaningfulness* of automatic sentences.

2. The Exploratory Study

Three sets of stimulus words were prepared. Each set contained each of the contextual constraint conditions—i.e., single word (1st degree), three-word phrase (3rd degree), and five-word phrase (5th degree). The initial word of each phrase in each set was chosen from a dictionary by opening it at random at alphabetically successive letters, and then pointing blindfolded to a spot on the page. So-called "hard" or "technical" words were discarded, and the actual words selected were *abandon*, *baby*, *care*, *debate*, *end*, *fears*, *glad*, *hate*, and *just*. The words to fill out the stimulus phrases when using these initial words were selected by the junior author as the first ones he thought of as being "meaningfully" added to the initial word and yet not completing a statement.

Ten male and 10 female *S*'s were chosen from among those who would volunteer for an experiment in "thinking." *S*'s ranged in age from 21 to 34 years, with a median of 26 years. All interviews were conducted on the campus of Tulane University. Each *S* served in each of the 9 possible combinations of goal and *contextual constraint*—i.e., each of 3 degrees of goal constraint paired with each of 3 degrees of *contextual constraint*. The order of presentation of experimental conditions, identical for all *S*'s, was first by increasing *goal constraint*; then, within each degree of *goal constraint*, by increasing degree of *contextual constraint*. To clarify, the order proceeded from, "Give me a word that goes with (single word) . . ." to "Give me a sentence on the topic of women (war) . . . using, in order, the words . . . (five-word phrase) . . ."

It will be noted that practice effect, if any exists, operates in the same direction as the expected experimental influence. This objection has a two-part answer. First, it is doubtful whether practice can have an effect; inasmuch as only one word is taken from each *S* in each of the 9 conditions, that single word cannot have more or less ongoing quality than any other single word.

Second, the degrees of *goal constraint* would not be what they purported to be if *high goal constraint* were presented first. The instruction to create a sentence on a particular topic would establish a set for sentences and topics that would vitiate the effect of a later instruction to "Give me a word that goes with . . ." *

One purpose of the exploratory study was to select the proper number of words to comprise the segments which would be judged for meaningfulness. The criterion used to evaluate the propriety of segment length was that the length used should yield a good "spread" among the 9 experimental conditions in terms of the frequencies of meaningful segments. As a start, a 6-word segment length was selected. Each of the 9 automatic sentences was broken down into 6-word segments as follows: For each of the sentences, the 1st through the 6th words were Segment No. 1; the 2nd through the 7th words formed Segment No. 2, and so on to the 15th through the 20th words, which comprised Segment No. 15. Inspection of the segments indicated the desired spread was not being achieved. Accordingly, segment length was increased to 7 words. The 9 automatic sentences were broken down into segments as described above—14 segments per sentence, 126 segments in all. These segments were copied on separate slips of paper. The slips were shuffled to conceal the source of the segment. The junior author and his wife independently judged each of the segments for meaningfulness. "Meaningfulness" was interpreted broadly; colloquialisms and lapses from good grammar were permitted.

3. *The Validation Study*

The greater part of the description of method in the exploratory study applies to the validation study. Its primary purpose was to determine whether any hierarchies established in the exploratory study would remain stable upon replication with new *S*'s. Differences in procedure are listed below:

1. In the validation study, 40 additional *S*'s—20 male and 20 female—were employed.

2. In the exploratory study, the *S*'s were required to use the stimulus words in sentences which were reasonably grammatical; no restriction against unusual or technical words was imposed. Then too, in the exploratory study, some *S*'s had altered the stimulus words; e.g., one *S* had altered "just men have a strong," to "unjust men have a strong," in beginning his sentence response. For these and other reasons, response-acceptability criteria were adopted in the validation study. After preliminary remarks, *E* said to *S* before using the stimulus instructions, "This is not really a test of your

ability; it is an experiment to find out something about how the English language works, and it takes people to get the experiment done. Please try to give good answers to my questions. Avoid unfamiliar words, technical terms, and any slang that would not be universally understood. Try to use ordinary good English." In addition to the instructions, *E* rejected all responses which in any way tampered with the meaning or forms of the word given; only the insertion of commas, when needed, and the capitalizing of the first word if it happened to begin a sentence were allowed. Also rejected were instances where the stimulus words were used in quotation marks—e.g., if the stimulus was "where the," *E* would reject, "The words 'where the' have just been spoken to me."

3. In the validation study, *S*'s ranged from 18 to 36 years in age, with a median of 24.5 years; years of education ranged from 12 to 19, with a median of 15 years.

4. To increase the stringency of the quantification, the automatic sentences generated in the validation study were broken into 8-word segments rather than 7-word segments as in the exploratory study. Thus, each of the 9 automatic sentences yielded 33 segments, or 297 in all.

5. In the validation study, new judges were employed. Four were selected from the language faculties of Tulane University. Three were used in the preliminary judging, and a fourth was introduced to decide certain disputed points. None of the judges was aware of the purpose of the experiment. The segments were presented to the judges in a manner which precluded the possibility of identifying the source of the segment. The judges were provided with a mimeographed set of instructions. The instructions attempted to anticipate problems which might arise, giving examples based on the exploratory study.

6. The stimulus phrases used in the *low goal constraint* condition in the exploratory study were used for *high goal constraint* in the validation study, and *vice versa*. The topic "women" used in the *high goal constraint* condition in the exploratory study was changed to "war" in the validation.

B. RESULTS

The distribution of the segments found to be meaningful in each of the studies is given in Table 1. Percentages found meaningful without regard to experimental conditions are 36 per cent in the exploratory study; 37 per cent in the validation. The difference in these percentages is *not* statistically significant. We wish to establish that the observed hierarchies of increasing meaningfulness are statistically significant. We propose to test the significance by the following series of steps:

TABLE 1

FREQUENCIES OF MEANINGFUL SEGMENTS BY DEGREE OF CONTEXTUAL CONSTRAINT AND DEGREE OF GOAL CONSTRAINT FOR EXPLORATORY STUDY ($N = 20$, 7-WORD SEGMENTS, 14 PER CELL POSSIBLE) AND VALIDATION STUDY ($N = 40$, 8-WORD SEGMENTS, 33 PER CELL POSSIBLE)

Degree of goal constraint	Degree of contextual constraint							
	Exploratory (a)				Validation (b)			
	1st	2nd	3rd	Tot.	1st	2nd	3rd	Tot.
Low	0	1	4	5	0	0	0	0
Medium	2	6	11	19	4	14	29	47
High	3	7	12	22	2	31	31	64
Total	5	14	27	46	6	45	60	111

1. For each study separately, show that the null hypothesis that cell frequencies are not independent of marginal totals is tenable. If the null hypothesis is tenable, the hierarchies indicated by the marginal totals are also manifest among the cells.

2. Show that the row totals and column totals for the two studies are homogeneous. If the null hypothesis is tenable here, then the results of the two studies may be combined.

3. Show that, for the combined table, row and column totals are *not* consistent with the hypothesis that the varying experimental conditions have equal influence on the meaningfulness of the automatic sentences.⁸

The steps will be accomplished by the Chi^2 technique. In the table for both studies, the top row (1st degree of *contextual constraint*) and left-hand column (*low goal constraint*) have expected frequencies too low for Chi^2 treatment. Accordingly, in each table, the first and second *rows* were combined, and the first and second *columns* were combined. For the exploratory study, $\text{Chi}^2 = .4$, $df = 1$, $p > .50$. For the validation study, $\text{Chi}^2 =$

⁸The writers are aware of two kinds of objection to such a technique: (1) No account is being taken of frequency of non-meaningful segments. We do not believe that this objection is valid, inasmuch as (a) the proportion of meaningful segments is approximately equal in the two tables; (b) attempt to include frequencies of non-meaningful segments would lead to a three- or four-dimensional contingency table. While this is not a reason for not accounting for such frequencies, the appropriate techniques are not available. (2) There is some question of the experimental independence of the cells. While it is true that each cell of the tables contains the frequency of meaningful segments of a single automatic sentence, it is true also that each of the 9 automatic sentences tabulated was generated by the same group of S's. To the extent that the 9 experimental conditions were not independent (e.g., of S's. To the extent that the 9 experimental conditions necessary for Chi^2 treatment practice effect may play a part), the assumptions necessary for Chi^2 treatment are not met. The authors have no answer to this objection. It is possible that the indicated hierarchies might be re-demonstrated by varying the order of presentation of *contextual constraint* with a constant degree of *goal constraint*.

2.5, $df = 1$, $p > .10$. This indicates that in each study, the hierarchies revealed in the marginal totals are consistent with the hierarchies in the cells of the tables.

In the comparison of row totals for Table 1, $\chi^2 = 1.5$, $df = 1$, $p > .20$; for column totals, $\chi^2 = .3$, $df = 1$, $p > .60$. It is apparent that the hierarchies responding to the influence of *goal* and *contextual constraint* in each of the studies could have come from a common population. Accordingly, the results for the two studies are combined in Table 2. An inspection of Table 2 obviates the need for further statistical treatment.

TABLE 2
FREQUENCIES OF MEANINGFUL SEGMENTS BY DEGREE OF CONTEXTUAL CONSTRAINT AND DEGREE OF GOAL CONSTRAINT FOR COMBINED DATA OF EXPLORATORY AND VALIDATION STUDIES ($N = 60$, 47 POSSIBLE PER CELL)

Degree of goal constant	Degree of contextual constraint			Total
	1st	2nd	3rd	
Low	0	1	4	5
Medium	6	20	40	66
High	5	38	53	86
Total	11	59	87	157

C. DISCUSSION

It is apparent that a very specific and artificial kind of language behavior (*automatic sentences*) generated in the circumstance of very specific constraints (*contextual* and *goal constraint*) manifests relative meaningfulness in terms of quantitative operational measurement. If the technique is to be useful methodologically, it must be generalizable to problems other than the limited ones considered here. Several possible applications are listed below:

1. The verbal materials constructed by Miller and Selfridge may be assigned indices of relative meaningfulness. They did not specify a degree of *goal constraint*, but, in terms of the definitions given here, they used *medium goal constraint*. The efficiency of retention may be studied when *goal constraint* as well as *contextual constraint* is varied.

2. Additional *goal constraints* may be employed. For example, the kind of topic used (for *high goal constraint*) may be deliberately varied. We may determine the effect on relative meaningfulness of *concrete* versus *abstract*, and *emotional* versus *non-emotional* topics. To a lesser degree, the stimulus words may be varied similarly.

3. "Cultures" may be compared for extent of language homogeneity. In a homogeneous culture, we might expect that generated automatic sen-

tences would yield a higher index of relative meaningfulness than when generated in a heterogeneous culture. A group of institutionalized orphans might be considered a homogeneous group; they could be contrasted with a matched group of children living with their own parents.

4. Effectiveness of communication between cultures might be explored as follows: Assuming that negroes and whites have separate cultures, automatic sentences might be generated *within* each group. In addition, such a sentence could be generated *between* the groups by taking the successive words alternately from the two cultures. Then it would be expected that the sentences generated *within* the groups would have a higher index of relative meaningfulness than the sentence generated *between* the groups.

5. A possible test of creativity in terms of "fluidity-rigidity" might be devised. An individual *S* would be given the task of generating his own automatic sentence after the procedure had been explained to him. He would be instructed to try to make his successive statements as different from each other as possible; if the index of relative meaningfulness of the generated automatic sentence were high, then *S*'s successive statements had ongoing quality—i.e., he was unable to break the continuity of his thinking, unable to develop new ideas; conversely, if the index were low, it would indicate capacity for introduction of new ideas and absence of rigidity.

These suggested applications emphasize that the present study attempted to demonstrate only that a useful index of relative meaningfulness has been defined. The number of possible applications is limited only by the ingenuity of the experimenter.

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CROSS-CULTURAL PATTERNS OF NATIONAL STEREOTYPES*

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A. THE PROBLEM

The revival of nationalism following World War II has produced a revival of interest in stereotypes on the part of social psychologists. A comparison of the stereotypes found in English (1) and Arab (5) subjects with those originally found by Katz and Braly at Princeton (3) suggests the possibility that some national stereotypes are extremely widespread. Thus, students in three continents agreed that Italians are musical and artistic, that Germans are scientific-minded, that Americans are materialistic, etc.

There were differences in some of the stereotypes, of course, but these differences also seemed to be significant in that they reflected the type of relationship existing between the rating group and the rated group. The contrast between the Arab picture of the English as shrewd, political, and egoistic, and the American picture of the English as reserved, sophisticated, and tradition-loving is easily explained in terms of contrasting experience with the English during recent years. Gilbert (2) points out that unfavorable changes in stereotypes found at Princeton in the last decade can be attributed to national conflicts in World War II. It might also be argued that the many changes in a favorable direction he found were not so much changes in stereotype as a suspicion of all stereotypes. This suspicion could be an outgrowth of the American need for social solidarity during such severe conflicts as that of war. Klineberg's summary of earlier studies of changing stereotypes (4, pp. 114-118) emphasized the effect which economic and political conditions have on the image.

The evidence is by no means conclusive, but it does warrant the observation that some national stereotypes are widespread among literate people, and that variations in stereotypes reflect group tensions, or the nature of group contact. It might be noted that the groups for which there is a

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widespread stereotype are those which have had widespread social influence or contact: English, Jews, Americans, Russians, Negroes, and Italians. On the other hand, there is scarcely any stereotype of the Irish in the Near East.

In this study we have checked the observation on a cultural group which has maintained its integrity in spite of severe persecution and geographical dislocation during the past 25 years.

B. SUBJECTS

Subjects were 100 Armenian students in the senior high school section of the Armenian Evangelical College of Beirut. They were obtained by utilizing the entire membership of several classes. Sixty of the subjects were female and 40 were male.

Armenians are one of the many minority groups found in Lebanon. Almost all of them came here from Turkish Armenia as refugees at the time (c. 1920-) that the Turkish authorities gave them a choice between assimilation and annihilation if they remained in their homeland. In Lebanon they have maintained their culture intact. They have their own churches (Armenian Gregorian and Armenian Protestant), newspapers, schools, alphabet, etc. They live in a certain area of town, and have social intercourse primarily with their own groups. Their insularity and solidarity is typical of Lebanese sects, and is not necessarily evidence of clannishness of Armenians generally. Their distinctive history in recent times does, however, provide us with a valuable group for use in studying stereotypes.

C. PROCEDURE

All subjects were given a questionnaire which contained a list of 99 adjectives. They were asked to use the adjectives in characterizing the following groups: English, Jews, Turks, Americans, Italians, Japanese, Russians, Germans, Chinese, French, Negroes, Lebanese, and Irish. Then they were asked to indicate for each group which five adjectives were most characteristic. Only these five were used in tabulations. The entire questionnaire was in the Armenian language, and was a translation of the Arabic one used by Prothro and Melikian (5). The questionnaires were administered by an Armenian psychology major from the American University of Beirut. The entire procedure was closely modeled after that used by Katz and Braly (3).

D. RESULTS AND DISCUSSION

The 10 adjectives most frequently assigned to each of the national groups are given in Table 1. In view of the fact that the adjectives have been

TABLE 1

TEN TRAITS MOST FREQUENTLY ASSIGNED BY 100 ARMENIAN STUDENTS: NUMBERS
INDICATE NUMBER OF STUDENTS SELECTING THAT ADJECTIVE

<i>Germans</i>	<i>Italians</i>	<i>Negroes</i>
militaristic 47	musical 66	enslaved 47
scientific 36	artistic 62	ignorant 42
nationalistic 35	industrious 41	strong 30
clever 33	mercantile 38	superstitious 26
musical 33	sportsmanlike 26	courageous 20
courageous 28	theorists 22	backward 20
strong 27	poor 21	simple 18
criminal 23	superstitious 13	artistic 18
proud 22	self-sacrificing 10	athletic 18
egoistic 11	aloof 8	musical 15
<i>Irish</i>	<i>English</i>	<i>Jews</i>
religious 41	deceitful 82	rich 71
revolutionary 21	political 72	stingy 63
militaristic 16	base 60	mercantile 59
humble 15	conservative 51	materialistic 51
dull 13	disciplined 43	travellers 48
clean 12	egoistic 23	fanatic 41
fanatic 11	patient 18	mean 35
gay 11	nationalistic 17	conservative 34
cautious 10	ignorant 14	scientific 31
imaginative 8	stubborn 10	religious 26
<i>Americans</i>	<i>Chinese</i>	<i>Japanese</i>
travellers 58	poor 48	self-sacrificing 58
rich 52	superstitious 46	fanatic 45
scientific 51	dirty 41	mercantile 36
benevolent 41	courageous 26	industrious 34
missionary 36	ignorant 25	clever 32
practical 35	nationalistic 25	courageous 29
proud 29	backward 23	militaristic 26
dreamers 26	religious 22	nationalistic 21
weak 18	artistic 16	ignorant 18
clever 12	progressive 12	deceitful 16
<i>Turks</i>	<i>French</i>	<i>Russians</i>
criminal 85	fun-loving 46	courageous 59
base 56	revolutionary 35	militaristic 45
deceitful 51	adaptable 33	peaceful 42
ignorant 42	emotional 32	revolutionary 32
lazy 41	base 31	oppressive 32
backward 40	militaristic 27	strong 28
fanatic 33	theorists 22	progressive 25
oppressive 32	nervous 18	musical 13
nationalistic 32	athletic 16	nationalistic 12
egoistic 31	treacherous 9	base 11
<i>Lebanese</i>		
	sectarian 51	
	emigrants 41	
	mercantile 29	
	adaptable 27	
	hospitable 26	
	clever 22	
	sociable 18	
	opportunistic 11	
	materialistic 8	
	fun-loving 5	

translated from Armenian, it would seem wise to exercise caution in making fine distinctions between similar words.

The stereotype which our subjects have of the Germans is quite similar to that held by American (2), English (1), and Arab (5) students. The picture of Germans as scientific, nationalistic, and militaristic could be identified by any of the groups so far studied. Princeton students did not call the Germans militaristic, but the word was not on the list provided them. The Arab students, who used the same list of adjectives as did our subjects, agreed with our subjects on seven of the first 10 adjectives.

The strongest elements of our subjects' stereotype of the Italians are those found in all similar investigations. The words "musical" and "artistic" seem to be associated regularly with Italians. Our subjects think of them as industrious and mercantile, as did the Arab students. They differ from all others, however, in that they do not think of Italians as emotional or unreliable. Indeed, the entire stereotype of the Armenians seems to come from traits one would associate with the Renaissance period.

The picture of the Negro which we see in Table 1 is also one which the subjects of previous investigations would readily identify. Such unfavorable characteristics as ignorant, backward, superstitious are listed by our subjects as by others. At the same time, Armenians list more favorable attributes than do others.

The stereotype of the Irish is quite indefinite, and many of the subjects frankly stated that they knew nothing about the Irish. The traits which lead our list (religious, revolutionary, militaristic) are perhaps a product of the fact that a history course at the college mentions the Irish Revolution.

The important rôle which the English have played throughout the Middle East is revealed by the similarity between the Armenian and the Arab stereotype of them. The picture is of an unscrupulous, imperialistic foreign service officer. It agrees with the "English gentleman" stereotype in imputing the traits conservative, disciplined, and patient, but otherwise is far more unfavorable. It should be noted that the Armenians had expected aid from England in their struggle with the Turks at the end of World War I. When no military aid materialized, they were embittered as well as disappointed.

The rich, stingy, materialistic, and mean traits of Shylock can be seen in the description of the Jew. Our subjects share the "Shylock" stereotype with the subjects of all other investigations. Unlike other subjects, they indicate that Jews are well-travelled, religious (even fanatic), and scientific. This suggests a possible influence of the new state of Israel.

The stereotype of Americans contains the usual traits of rich and practical. But the effect of American assistance to the Armenian refugees during the early 1920's and of establishment of missionary schools can be seen in other parts of the stereotype. Against this background, it can be understood why Americans are thought of as missionaries and benefactors who travel a great deal.

Our students describe the Chinese in a way that closely resembles the description given by the Arabs. The English and American students had quite a different picture. When one compares the poor, dirty, courageous, nationalistic Chinese of our sample with the meditative, family-loyal, tradition-loving Chinese of the earlier studies, the possibility suggests itself that the rise of Red China and the well-publicized intervention of the Chinese into the Korean conflict have made this great difference.

The stereotype of the Japanese resembles that held by Arabs, and has some elements in common with that held by Americans. The term "self-sacrificing" is used in a literal sense. It refers to such activity as that of the Kamikaze pilots in 1945.

The Turks fare worse than any of the other national groups. Eighty-five subjects called them criminal. Of the 10 most frequently assigned traits, "nationalistic" is the only one which might be thought of as favorable. This derogatory picture is exactly what we would expect from a knowledge of the background of conflict and is more unfavorable than that held by other groups.

Our subjects have a stereotype of the French which is quite similar to the Arab students' stereotype of the French. They are seen as emotional, nervous, and fun-loving but also as militaristic, base, and treacherous. Although Lebanon was a French mandate from 1920 to 1943, neither the Armenians nor the Arabs seem to have a strong stereotype of them. No data are available on the American stereotype of the French. The English subjects describe them as passionate, talkative, and witty.

Russians are characterized as courageous, militaristic, revolutionary, strong, nationalistic, and progressive both by our subjects and by the Arab subjects. The picture would probably be recognized, if not entirely endorsed, by Americans. Unfortunately the Princeton studies did not gather data on the stereotype of the Russians. The English stereotype includes such adjectives as tough, brave, and progressive. The 42 Armenian students who think of Russians as "peaceful" are probably testimony to the success of the extensive "peace propaganda" of the Soviet Union.

The stereotype of the Lebanese is not very definite, but it agrees fairly well with the stereotype which Arabs (including many Lebanese) hold.

In general it should be noted that our subjects have remarkably definite stereotypes. They agreed on adjectives chosen to a greater extent than did the subjects of any of the other studies. This is probably testimony to the homogeneous nature of the sample. The stereotype of English and Jews are most definite. That is, there is greater agreement on the adjectives assigned to these two groups. Other studies have also shown these two groups to be among the more definitely stereotyped.

One general implication of our data seems to be that Armenian students can be added to the list of groups which hold similar stereotypes of members of certain nations. Armenian students shared many elements of the "standard" stereotype of Germans, Italians, Negroes, English, Jews, and Americans. At the same time, our subjects differed from all other groups of subjects, or differed from all except the Arabs, in many of the traits which they attributed. The differences, however, seemed in many instances to reflect known cultural contacts. Thus the unfavorable picture of the Turk reflects a well-known historical conflict, as does the somewhat unfavorable stereotype of the English. It would appear that a study of stereotypes might be an effective technique for the evaluation of the effects of contacts between nations or ethnic groups.

E. SUMMARY AND CONCLUSIONS

Examination of data from previous studies of stereotypes revealed that literate subjects in different countries held somewhat similar stereotypes of English, Jews, Americans, Russians, Negroes, Italians. Many of the *differences* in stereotypes could be traced to known social contacts between the group holding the stereotype and the group stereotyped. These observations were checked against a sample of 100 Armenian students attending an Armenian school. The group was homogeneous with respect to culture and background, and its recent history was known. It was found that our subjects held quite definite stereotypes, and that these stereotypes resembled in many ways those held by other groups. The unique elements of their stereotypes were related to identified social contact. The unusually definite and unfavorable stereotypes of Turks and English, for example, were related to the severe persecution suffered by Armenians at the end of the first World War. In general it appears that stereotypes are useful devices for gauging social harmony and social tensions.

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SOME INDIVIDUAL AND GROUP DIFFERENCES IN VOTING FOR SELF*

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A. INTRODUCTION

The purpose of this study was to investigate some individual and group differences in voting for self among 67 delinquent boys. The subjects were asked to cast up to three votes for the person or persons, including themselves, whom they thought would make the best leaders. The results were analyzed for differences in religion, chronological age, elected leadership, and color between those who voted for themselves and those who did not cast self-votes. These four variables were selected for investigation on the basis of related studies and the writer's cursory observation of the phenomenon.

The evidence that members of the various religious groups differ significantly from other groups in certain areas, including voting behavior, seemed to warrant investigation of the possible effect of religious affiliation and religious training on casting votes for one's self. Festinger (3) sought to determine the rôle that group belongingness and religious affiliation played on the voting behavior of college girls. He reported significant differences, in both large and small experimental groups, among Jewish and Catholic subjects for each religious group tended to identify with and to support their own members. More recently, Brown and Lowe (2) found that Catholic undergraduate students were as a group considerably more orthodox in their opinions and attitudes than Protestants.

Self-confidence has been reported as one characteristic which apparently distinguishes the leader from the non-leader. Hunter and Jordan (3), Hanawalt and his associates (4), and Moore (5), employing a variety of approaches and techniques, all reported that leaders tend to possess more self-confidence or were more self-sufficient than non-leaders. If leaders are more self-confident, it would follow that subjects, who later attained leadership positions, might cast more self-votes than those who were not elected leaders. This was the major hypothesis that was tested.

The study was conducted at Youth House, an agency for the care and

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remediation of delinquent boys, in New York City. While the writer was a member of the supervisory staff, it was observed that particular boys often cast self-votes while others apparently never voted for themselves. Cursory observation seemed to suggest that: (a) Protestant boys tended to cast more self-votes than Catholics, (b) Negro boys seemed to vote for themselves more often than white boys, (c) older boys tended to cast more self-votes than younger boys.

B. SUBJECTS AND PROCEDURE

The population consisted of 67 delinquent boys confined on one floor. The ages represented ranged from a low of 9.4 years to a high of 14.7 years; the mean age of the group was 12.2 years. All of the subjects were legally delinquent; each had been apprehended by some law enforcement agency. As measured by the occupational classification of their parents, all of the subjects were from the lower socio-economic class.

A leader, for this study, was operationally defined as a boy who was elected a member of the boys' council. At this institution each floor elects four members of their respective group to the Boys' Council. There is great prestige and excitement associated with this honor; the competition and interest runs high. Campaigning for office was a vigorous and vocal activity.

The council members meet weekly with the executive director of the institution to discuss problems which the groups themselves suggest. A chairman and vice-chairman are elected by the boys' council. Since there are four groups or floors in the institution, the total council is composed of 16 members. The chairman of the council is called upon to appoint candidates to four committees: reception, food service, tour, and recreation. The council members serve as members of the editorial staff of the institution's weekly newspaper. Finally, only duly-elected members of the council are allowed to wear special blue-colored shirts with the words, "Youth House" stamped on them in white.

The voting technique was well controlled. The voters sat at tables in the floor lounge listening to children's records. They were supervised by the regular adult group worker and four council members. Silence was maintained during the elections. Voting was secret and verbal. Each boy was called individually to a small room, which was separated from the floor lounge by a 20-foot long corridor. The instructions to each voter were memorized by the investigator. The instructions were:

Please vote for those whom you think will make the best council members. If you feel you can do the job, feel free to vote for yourself. You may vote for one, two, or three persons. Vote for those boys who will help to improve our group.

Selections were recorded by the investigator. The boy or boys, depending on the number of vacancies that existed at the time, who received the highest number of votes was declared the winner.

The data reported include five elections which were held over a period of three months. Since the institution is of the temporary custodial type, boys were continually arriving from and departing for their homes, going to and from the Children's Court, going to other agencies and to their probation officers. As a result, the size of the group voting at each election averaged 19 boys. Each subject included in this study voted on at least one occasion.

C. RESULTS AND DISCUSSION

The 67 subjects cast a total of 307 votes for council members in five elections. An analysis of the voting in terms of votes cast for self revealed that 46 votes of the total were self-votes: 34 subjects voted for themselves on one occasion, 10 boys voted for themselves on two occasions, and only two boys cast self-votes in three elections. It was interesting to note that the two boys who voted for themselves in three elections did not receive any other votes. During the period studied, 17 boys became leaders; 50 boys did not attain leadership positions.

Table 1 relates chi-square differences, corrected for continuity, on the variables studied. An examination of Table 1 shows that there were no differences among self-voters and non-self-voters in age, religion, or color. Apparently, both the older and younger, Negro and white, Catholic and Protestant cast self-votes in a similar fashion. There is a difference however, between leaders and non-leaders, this difference is significant at the .01 level of probability. From the observation of the subjects' general enthusiasm and excitement at elections, it appeared as if most of the boys were

TABLE 1
DIFFERENCES IN SELF-VOTING ACCORDING TO ELECTED LEADERSHIP, RELIGION, COLOR AND AGE

Variable	Self-Voters	Non-Self-Voters	Corrected Chi-square
Leaders	15	2	
Non-Leaders	19	31	11.0*
Catholics	19	23	
Protestants	15	10	1.0
Whites	22	20	
Negroes	12	13	0.1
Below Mean Age	15	15	
Above or Mean Age	19	18	0.1

*A chi-square value of 6.635 indicates significance at the 1 per cent level.

eager to attain leadership positions yet, 49 per cent of the subjects did not vote for themselves.

The finding that there were no racial, religious, or age differences in self-voting appears surprising for it would seem, in light of the evidence from other studies in the area, that differences in moral and religious training such as are received by the various religious groups, would, in some cases foster, in other cases deter, voting for self. Due to the abnormality of the population and the sample size, these findings may be limited in their application to other groups. Just how widely we can generalize the findings reported to other groups of children, especially those which differ socio-economically and in sexual composition, is a matter for further research.

It would seem that voting for self is a new and strange experience for the subjects; an experience that tends to be inconsistent with their concepts of themselves as persons. Rogers (7) has hypothesized that all experiences that occur to an individual are either: (a) symbolized, perceived, and organized into some relationship to the self; (b) ignored because there is no preceived relationship to the self; (c) denied symbolization or given a distorted symbolization because the experience is inconsistent with the structure of the self. It is the hypothesis of this investigator that because of the uniqueness and personal involvement of voting for self, those who were most strongly motivated to attain leadership positions consistently cast self-votes. Without such motivation and interest, the casting of self-votes would be an inconsistent practice in terms of the structure of the self. On the basis of such an hypothesis, one could account for some of deviant behavior that children and adults display occasionally.

If it is true, as Combs (2) has suggested, that the self-concept governs a large portion of our behavior and that we act in ways appropriate to the manner in which we see ourselves in daily situations, it would follow that boys who received few votes, yet voted for themselves, have unrealistic evaluations of themselves. That boys, who were elected to leadership positions, voted for themselves significantly more than non-leaders, would suggest that the former may possess a more realistic evaluation of themselves and a more accurate picture of the group in which they are members.

D. SUMMARY AND CONCLUSIONS

This study was concerned with the measurement of differences in religion, age, elected leadership, and race among 67 delinquent boys in voting for self. The subjects were asked to cast up to three votes for the person or persons,

including themselves, whom they thought would make the best leaders. Voting was secret and took place in a room isolated from the group.

The results may be summarized as follows:

1. Although all the subjects appeared to be highly motivated to attain leadership rôles, only 51 per cent of the boys voted for themselves on one or more occasions.

2. Leaders cast significantly more self-votes than those who did not obtain leadership positions (Chi-square = 11.0).

3. There were no racial, religious, or age differences in self-voting.

4. An attempt was made to relate self-voting or its lack to the uniqueness of the experience, the motivation and self-evaluations of the subjects.

5. It was suggested that the difference between leaders and non-leaders may be both in terms of the leaders' more realistic evaluation of himself as a person, and his more accurate evaluation of the group.

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THE INTERNAL CONSISTENCY OF THE SZONDI "FACTORS"*¹

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A. THE PROBLEM

The Szondi test consists of 48 photographs of the faces of mental patients, divided into six sets of eight pictures each. Every set contains one member from each of eight psychiatric disease entities. The subject taking the Szondi test selects from each set, two pictures that he likes and two that he dislikes. The psychiatric categories to which the patients in the selected pictures belong determine the subject's score on the test. An interpretation of the personality dynamics of the subject is then based directly on these category or "factor" scores.

Since pictures within a category are not differentially weighted, equivalence of pictures within each category of the Szondi test is assumed. Thus, individuals liking one picture within a given category should tend to like other pictures within the same category, and individuals disliking one picture within a given category should tend to dislike other pictures within the same category. If this condition is not fulfilled, the factors will lack internal consistency, since component items cannot show a significant correlation with the total scores unless they show significant correlations with one another. For fallible measures, such as the Szondi, reliability of measurement is dependent on the internal consistency of the scales.

A second assumption implicit in a test yielding a number of subscores, which are differently interpreted, is a relative degree of independence among the several scales. This independence is achieved when items from one category are not significantly correlated with a substantial number of items from other categories.

Lubin and Malloy (3), using a group of psychiatric patients as subjects, found neither of the above assumptions, of internal consistency or independence, to be tenable for the Szondi test. The same two assumptions are examined in the present study, using a group of normal subjects and a modified method of picture presentation.

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B. PROCEDURE

The Szondi pictures were made into a film strip, with the sets appearing in their prescribed order, and the pictures randomized within each set.² The subjects consisted of 118 male and 82 female summer school students at an eastern university. Testing was performed by classroom groups of about 30 students each. After a preliminary run, to accustom the students to the type of pictures comprising the test, the subjects indicated "like" or "dislike" for each picture. Ten seconds allotted for each judgment proved ample.

The above method of presentation was considered to be more meaningful for the present study than the standard procedure. All of the relationships among the 48 pictures cannot be determined using the standard procedure, when the subject is forced to indicate two pictures as liked and two as disliked in each set of eight. Let us take the limiting case of a subject who actually likes all the pictures in the first set and dislikes all the pictures in the second set. The subject would be forced to select two disliked pictures as liked, and two liked pictures as disliked, using the Szondi method of presentation. Of the 120 intercorrelations among pictures in these two sets, 48, or 40 per cent would be *opposite* in sign to the actual felt relationships. The method of individual presentation allows the subject to indicate a specific judgment for each picture that can then be related to his judgment for every other picture.

The correlation of every picture with every other picture was determined with the aid of the Chessire, Saffir, and Thurstone computing diagrams (1) giving a total of 1,128 coefficients of correlation. The standard error was computed for each coefficient of correlation, and the significance of the difference of each from zero was tested for the 5 and 1 per cent levels of confidence.

C. RESULTS

If we assume as the null hypothesis, that there is no relationship between a person's liking or disliking one Szondi picture and his liking or disliking any other Szondi picture, we would expect to find about 11 correlation coefficients significantly different from zero at the .01 level of confidence, and about 56 significant at the .05 level in a half matrix containing 1,128 different intercorrelations. Since 127 correlations proved to be significant at the .01 level and 274 at the .05 level, it may be held beyond the one per

²The writer wishes to express his appreciation to Paul W. Pruyser for technical assistance in this study.

cent level of confidence that the relationship among pictures liked and disliked in the Szondi test is not a chance phenomenon.

The number of different correlations significant at the .01 level and at the .05 level within each Szondi category is presented in Table 1. Since

TABLE 1
NUMBER OF CORRELATIONS SIGNIFICANTLY DIFFERENT FROM ZERO AT THE 1 AND 5 PER CENT LEVELS, BY FACTORIAL CONSTELLATION

Level of confidence	Homosexual	Sadist	Epileptic	Hysterie	Paranoid	Catatonic	Manic	Depressive
1%	7	1	2	2	4	3	0	3
5%	3	0	3	0	4	2	1	2

there are 15 different intercorrelations within each Szondi category, for the eight Szondi categories there are 120 different intercorrelations. Of these only 37 or 30.8 per cent are significant at the very liberal .05 level of confidence. Now, since 24.3 per cent of all the correlations in the entire half matrix are significantly different from zero at the .05 level, the hypothesis that the value of 30.8 per cent represents a sampling fluctuation from a true value of 24.3 per cent cannot be rejected at any reasonable level of confidence. Thus the Szondi categories cannot be said to have higher internal consistency than the test as a whole. The assumption that choices of pictures from a given "factor" are equivalent to choices of other pictures from the same "factor" is clearly untenable.

The absence of significance within the Szondi constellations cannot be ascribed to unreliability of measurement, since the matrix as a whole contains a far greater number of significant correlations, than would be expected by chance. Furthermore, there are available more than twice the number of significant correlations necessary for all the correlations within the Szondi categories to be significant.

The assumption of independence may be tested only with the Homosexual and Paranoid categories, since these two categories are the only ones having a significantly greater proportion of significant correlations than the matrix as a whole.

Of the correlations between pictures in each of these two categories and pictures from other categories, the Homosexual and Paranoid categories had, respectively, 22.1 and 29.6 per cent of their correlations significant at the .05 level and 10.0 and 16.7 per cent significant at the .01 level. These

are significantly greater percentages than would be expected by chance. Thus, the second assumption of independence is untenable when tested on the only two categories showing a degree of coherence greater than the matrix as a whole.

It may be concluded from these findings that at least six of the eight Szondi "factors" do not possess scalar qualities. Neither can the Homosexual nor the Paranoid categories be taken to represent independent "factorial constellations." They represent groups of items with relatively high loadings on an undetermined number of common factors, which also account for a significant proportion of the variance of a substantial number of pictures in the remainder of the test.

Of the half dozen correlation coefficients that are the highest multiple of their standard errors, only one is between members of the same category.

TABLE 2
PAIRS OF PICTURES WHOSE CORRELATIONS ARE THE HIGHEST MULTIPLES OF THEIR STANDARD ERRORS

Pictures		<i>r</i>	<i>r</i> /SE
II _s	Ve	.61	5.43
III _h	IV _h	.58	5.18
II _p	IV _e	.54	4.79
I _p	VI _m	.54	4.68
I _h	VI _m	.53	4.66
II _{im}	IV _d	.54	4.57

Inspection of these pairs of pictures reveals highly similar facial characteristics common within each pair which could account for the sizable correlation. Thus the liking or disliking of particular Szondi pictures may very well depend upon the subject's feeling toward the apparent sex, beardedness, or expression of the patient in the picture, rather than identification or counteridentification with the motivational processes underlying the disorder, as Deri (2) postulates.

In conclusion, the results of the present study indicate that Szondi's "factorial constellations" do not represent scales, dimensions, or factors in the statistical sense. These categories probably represent little other than groupings of photographs of people who have been assigned the same diagnostic labels. Since interpretation of the personality dynamics of the subject is based solely on these "factorial" scores, the Szondi test should not be used for individual diagnosis until a meaningful scoring method has been developed and validated.

Since some significant relationships have been found between the liking

or disliking of particular Szondi pictures and the liking or disliking of others, certain meaningful dimensions probably underlie the selection of these pictures as liked or disliked. Factor analysis of the pictures is in progress to determine what variables may be postulated to account for the significant correlations in the matrix (2a).

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A COMPARISON OF MACHOVER AND THEMATIC APPERCEPTION TEST INTERPRETATION*

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A. THE PROBLEM

Proceeding on the theory that if two tests are designed for the purpose of determining the needs and conflicts pressing upon the individuals taking these tests there should be the projection of the same needs and conflicts into both tests, an attempt has been made here to check the interpretation of the Machover Figure Projection Test against the Morgan-Murray Thematic Apperception Test. Points of similarity between the two sets of test results will be examined and discussed.

B. SUBJECTS

The subjects used in this research were the male students of the 1950 Psychology of Personality class at American International College. As a part of this course the students were required to draw a set of Machover Figures, and later to write a story about each of 10 pre-selected Thematic Apperception Cards. The Thematic Pictures were projected onto a screen and thus given in a group setting with five minutes allowed for the writing of each story, hence the stories were short. Twenty-five students were used, all of the males in the class.

C. PROCEDURE

Each set of Machover figures was interpreted by the senior author, according to the suggestions made by Machover and the interpretations discussed with the junior author (1). Then, independently, the same process was used on the Thematic Stories, each being inspected for the one or two principle features of each story as indicative of conflict areas, using the accustomed method of interpretation (2). Because of the method of giving the Thematic stories were short, and each showed only a few areas of need or conflict. These two sets of material were then matched and the comparison made in terms of the percentage of instances in which the results

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of the Machover Test were corroborated in the Thematic Apperception Test protocols.

D. RESULTS

In terms of percentage of material found in the Machover interpretation and corroborated in the Thematic Apperception Test the range was from 33 to 100 per cent. The mean was 72 per cent agreement between the two. Table 1 presents the actual percentages as found in the 25 cases.

TABLE 1

Range of %	Number cases
31- 40	2
41- 50	2
51- 60	5
61- 70	1
71- 80	7
81- 90	4
91-100	4
Total	25

For illustration of the material compared we are including one test which showed 100 per cent of the items of the Machover confirmed by the Thematic Apperception Test, and one which stood approximately at the mean for the group.

Subject 5

(100% corroboration)

Machover

The Machover female figure is drawn as more virile and physically superior to the male. She is obviously a mother figure. Conflict treatment of the hips and feet, reinforced belt buckle, tie, fly on the trousers, and broken crotch area are all indicative of sexual conflict and feelings of inadequacy. The emphasized shoulders and hair shading add to the inadequacy interpretation and might indicate a tendency toward sexual ambivalence. Oral dependence or guilt over the use of the mouth is suggested, and the lack of chins might indicate lack of determination and reluctance to deal with the situation confronting the subject. Placement at the bottom of the page may indicate a degree of depression.

Thematic Apperception

Story 1. Complete submission to mother is shown, and guilt over hostile impulses is suggested.

Story 2. Dependency is again represented.

Story 3. Dependency is expressed. As in the above story there is a tendency to evade plots and give descriptive stories. Evasion of the task and possible repression is indicated.

Story 4. Rejection and dominance by female suggested, passiveness indicated.

Story 5. Emotional disturbance is the main theme.

Story 6. Repressed hostility and aggression toward women is expressed in this story because of the situational remoteness.

Story 7. Rejection of sex and guilt for his acts indicated, with fear of heterosexual intercourse indicated.

Story 8. Inadequacy and female dominance and superiority are expressed.

Story 9. Guilt-induced rectification for consequences of aggressive impulses is expressed. Repressed sexual impulses are evident.

Story 10. Mother dominance and identification with female is indicated.

Subject 23

(80% corroboration)

Machover

Identification with the female sex and a tendency toward sexual inversion is represented by having drawn the female figure first and much more powerful, active, and large. Male figure is physically weak, shabby, and socially retiring. Oral dependence is seen in the emphasis on the breasts and the full lips. Confusion of the sexual rôle is seen in the male hip emphasis and body inferiority. The subject might be considered socially withdrawn as well as psychosexually immature.

Thematic Apperception

Story 1. Mother domination is the main theme.

Story 2. Confusion of sexes is seen and repressed aggression is indicated.

Story 3. Rebellion against paternal dominance is expressed.

Story 4. Subject identifies with female and places emphasis upon refinement.

Story 5. Maternal domination is the main theme and subject is emotionally involved with the female character.

Story 6. Tension and aggression are expressed, the sexes of the people in the picture are confused, and emotional imbalance is depicted.

Story 7. A complete rejection of sex and omission of the female in the picture, plus the introduction of a rescuing "buddy" suggests homosexual tendencies.

Story 8. Hostility towards mother image and identification with the female figure is evident.

Story 9. Aggressiveness and morbidness are represented.

Story 10. There is again a complete rejection of sex.

E. DISCUSSION

It is quite evident that the Thematic Apperception Test can and usually does bring to light the same basic needs and conflicts that are expressed in the drawing of the human figure. In every one of the cases there was seen much duplication of the basic themes represented in the Machovers by the Thematic Apperception stories. Of course, not all the material gathered from the Machovers was corroborated by the Thematic Apperception Test, but it appears that the needs and conflicts which are *most* pressing upon the testee are repeated in both.

It is especially noted that there is a transformation of the personality factors in switching from one test to the other. Most of the material gathered from the Machovers was inserted on an unconscious level, and represents the more or less unadulterated basic needs. However in the Thematic Apperception Test the subject can, and does, integrate the needs and conflicts in the total personality expression, and the results are therefore more likely to be tinged and altered by the familiar techniques of defense. For example: a subject would be less likely to express direct hostility and aggressive actions toward his father or mother on a conscious level while writing a story to a *TAT* card; but a generalized reaction and expression of these feelings can be found in stories dealing with rebellion against society and its institutions, school teachers, and other dominating or superior groups or persons.

Then again, the Machover figures can very seldom give an indication of the level on which the needs or conflicts will be expressed, nor can they give the conditions under which such expression will take place. The manner in which these personality aspects are altered and fitted into the total personality are quite hidden in a direct Machover interpretation; but the *TAT* can, if scored correctly, be used not only for divulging the contents of personality, but also the levels upon which the needs and conflicts operate, the conditions necessary for operation, and the general reaction of the individual to his own thoughts and actions.

With this in mind, it would seem that these tests might be best used to advantage when taken together. In this manner, not only the basic personality constituents, but also their modes of function and expression in the individual can be better determined.

The subjects used in this experiment are not to be considered as representative of the general population. In the first place, there is reason to suspect that many of the subjects were taking the course in Personality because of the presence of personal problems and were probably following the

neurotic pattern in seeking information which they might relate to themselves. But for this population in all cases the *TAT* corroborated to greater or lesser extent the findings of the Machover, with as we have said a mean of 72 per cent. Although not all aspects of the Machover were corroborated by the *TAT*, those aspects which were probably of greatest intensity and importance to the individual were recognizable in both tests. On the basis of this study it is recommended that both tests be given to the same individual, especially in a college population, in order to see not only the basic needs and conflicts as represented in the Machover test, but also the manner in which they are integrated and expressed in the total personality situation.

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THE USE OF A SENTENCE COMPLETION TEST IN MEASURING ATTITUDINAL CHANGES AMONG COLLEGE FRESHMEN*

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A. PURPOSE

The purpose of this study is two-fold: (a) to attempt to measure some of the attitudinal changes taking place in a group of freshmen during their first semester in college; (b) to try out an experimental technique of course evaluation (the sentence-completion test).

The sentence completion test (hereinafter referred to as the *SCT*) appears to be well established as a projective test in clinical psychology, and a considerable body of literature concerned with its use and interpretation has developed. Studies by Sacks (7), Rohde (4), Rotter and Willerman (5), and Rotter, Rafferty, and Schachtitz (6) report on efficacy of the *SCT* as a means of identifying persons with emotional difficulties. However, the literature reports little on the use of the *SCT* as a method of evaluation in education. Wilson discusses the use of the *SCT* in a secondary school situation, but she is interested in it as a screening device for maladjusted students. Forms of the *SCT* have also been used by Schaffner (8) in studying national character in German settings, by Farber (2) in a study comparing attitudes of British and American insurance clerks, and by Adorno, Frenkel-Brunswik, *et al.* (1) in their exploration of personality factors related to prejudice. Lindgren reports, in an exploratory study, that the use of the *SCT* in course evaluation seems to reveal evidence of attitudinal patterns which might otherwise go unnoticed by the instructor. He felt that one of the strong points favoring the *SCT* was its ability to tap feelings and attitudes which respondents might conceal from themselves, as well as others, and which would not therefore be given as responses to the more direct questions of the more conventional questionnaire or attitude scale. Although Lindgren presented evidence to show how the *SCT* could be used to differ-

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¹The writer wishes to express his appreciation for the work done on this study by Harriet Knoblock and John Paizis, graduate students at San Francisco State College.

entiate between groups on the basis of attitudes, he was unable to show, because of incompleteness of data, whether any changes had actually taken place in the group which was the subject of this study. Sacks found the *SCT* useful "as an effective technique for determining the content of a subject's attitude" in the categories and areas he studied. He reports that 77 per cent of the interpretation of the attitudes were in close or partial agreement with clinical findings.

The present study was undertaken in an attempt to discover what attitudinal changes, if any, might be revealed, in three groups of low freshmen in college, by the use of an *SCT* at the beginning and at the end of an instructional period.

B. PROCEDURE

An anonymous 20-item *SCT* was administered twice to three groups of college freshmen taking first semester psychology (a required course) during the fall semester, 1950-51. The test was administered in a medium-sized, metropolitan, liberal arts college, for the first time about the first of October and the second time toward the end of January, slightly less than four months later. The stimulus phrases which constituted the test (excepting the first item, "What I like . . .," which was used as a "warm-up" item) may be found in Table 1.

The responses were then scored independently by two judges on a three-point scale of acceptance and rejection, using the symbol "*A*" to represent the existence of an accepting attitude toward the elements presented in the stimulus phrases, "*N*" to represent neither acceptance nor rejection, and "*R*" to represent a rejecting or hostile attitude. Although the agreement of the judges varied from one item to another, it averaged about 75 per cent.² Deviations of more than one point were rare, occurring in less than 3 per cent of the cases. The percentage of responses was then calculated for each item, each category, each sex, and each administration. The two forms of the test were then matched on the basis of handwriting,³ and percentages were computed for each sex in terms of the direction of change in attitude during the period between the two administrations of the test.

²Rohde reports a similar amount of agreement among judges in her study (2).

³Admittedly matching by handwriting is not the most reliable method of pairing. The idea of matching the two test forms in order to isolate directional change was suggested after the data had been gathered, thus it was not possible to use the more reliable method of having students identify their test paper by use of a symbol known only to them. A number of cases were dropped from the study because it was not possible to agree on whether they matched, hence the percentages of attitudinal change reported in Table 1 are probably less reliable than the percentages reported for the classification of attitudes by type.

TABLE 1
ATTITUDE CHANGE OF STUDENTS IN FIRST SEMESTER PSYCHOLOGY AS REVEALED BY SENTENCE COMPLETION TEST, OCTOBER, 1950, COMPARED WITH JANUARY, 1951 ($N = 57$: 25 MALE, 32 FEMALE)

Stimulus phrase		Percentage of responses classified by type				Percentage of modified responses, classified by direction of change			
		A	R	N ^a		A	R	N ^b	
2. I think that this class	Oct.	M	68	16	16				
		F	63	13	24	Total	66	14	20
	Jan.	M	66	20	14				
3. Working for other people		F	56	28	16	Total	61	24	15
	Oct.	M	54	32	14				
		F	55	38	7	Total	54	35	11
4. Most girls	Jan.	M	76	18	6				
		F	48	29	23	Total	62	23	15
	Oct.	M	44	28	28				
5. Psychology books		F	47	29	25	Total	45	28	27
	Jan.	M	64	24	12				
		F	36	34	30	Total	50	29	21
6. The discussions in this class	Oct.	M	32	40	28				
		F	44	39	17	Total	38	39	23
	Jan.	M	42	36	22				
7. Middle-aged people		F	29	49	22	Total	35	43	22
	Oct.	M	58	26	16				
		F	56	16	28	Total	57	21	22
8. Getting an "F"	Jan.	M	68	26	6				
		F	66	21	13	Total	67	24	9
	Oct.	M	58	26	16				
		F	48	23	28	Total	53	25	22
	Jan.	M	50	32	18				
		F	34	34	32	Total	42	33	25
	Oct.	M	10	40	50				
		F	9	50	41	Total	9	45	46
	Jan.	M	13	34	48				
		F	9	50	41	Total	13	42	45
	Oct.	M	22	18	60				
		F	25	34	41	Total	22	18	20
	Jan.	M	24	26	50				
		F	29	15	56	Total	29	15	15
	Oct.	M	32	16	52				
		F	31	23	46	Total	32	16	27
	Jan.	M	26	16	58				
		F	9	25	66	Total	26	16	23
	Oct.	M	30	16	54				
		F	23	10	67	Total	30	16	22
	Jan.	M	27	13	60				
		F	8	25	67	Total	27	13	22
	Oct.	M	10	22	68				
		F	9	23	68	Total	10	22	22
	Jan.	M	28	16	56				
		F	17	10	73	Total	28	16	22
	Oct.	M	22	13	65				
		F	22	13	65	Total	22	13	22

TABLE 1 (continued)

Stimulus phrase	Percentage of responses classified by type					Percentage of modified responses, classified by direction of change				
	A	R	N ^a	A	R	N ^a	A	R	N ^b	
9. Girls who "pet"	Oct.	M	20	56	24					
		F	11	47	42					
	Jan.	M	53	24	23	Total	16	51	33	
10. Most fellows my age		F	14	45	41					
	Oct.	M	22	4	74					
	Jan.	M	22	2	76	Total	27	15	58	
11. Getting a job		F	23	42	35					
	Oct.	M	28	32	40					
	Jan.	M	18	61	21	Total	23	46	31	
12. I feel that		F	28	30	42					
	Oct.	M	74	16	10					
	Jan.	M	48	23	28	Total	61	20	19	
13. Marriages between persons of different races		F	46	28	26					
	Oct.	M	14	78	8					
	Jan.	M	36	52	12	Total	55	25	20	
14. Most high school teachers		F	63	23	14					
	Oct.	M	28	53	19					
	Jan.	M	31	47	22	Total	21	66	13	
15. People who are shy		F	46	44	10					
	Oct.	M	23	58	19					
	Jan.	M	28	62	10	Total	35	51	14	
		F	32	54	14					
	Oct.	M	12	55	33					
	Jan.	M	23	51	26	Total	30	58	12	
		F	27	54	18					
	Oct.	M	21	50	29					
	Jan.	M	21	50	29	Total	17	53	29	
		F	27	54	18					
	Oct.	M	27	54	18					
	Jan.	M	27	54	18	Total	25	52	23	
		F	27	54	18					
	Oct.	M	27	54	18					
	Jan.	M	27	54	18	Total	25	52	23	
		F	27	54	18					
	Oct.	M	27	54	18					
	Jan.	M	27	54	18	Total	25	52	23	
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	Jan.	M	27	54	18	Total	25	52	23	
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	Jan.	M	27	54	18	Total	25	52	23	
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	Oct.	M	27	54	18					
	Jan.	M	27	54	18	Total	25	52	23	
		F	27	54	18					
	Oct.	M	27	54	18					
	Jan.	M	27	54	18	Total	25	52	23	
		F	27	54	18					
	Oct.	M	27	54	18					

TABLE 1 (continued)

Stimulus phrase		Percentage of responses classified by type							Percentage of modified responses, classified by direction of change				
			A	R	N ^a		A	R	N ^a		A	R	NC ^b
16. College professors are	Oct.	M	70	14	16								
		F	50	25	25	Total	60	20	20	M	20	16	64
	Jan.	M	74	10	16					F	31	13	56
		F	74	13	13	Total	74	11	15	Total	25	15	60
17. Most employers	Oct.	M	64	28	8								
		F	47	34	19	Total	56	31	13	M	14	20	66
	Jan.	M	60	34	6					F	25	28	47
		F	48	34	18	Total	54	34	12	Total	19	24	57
18. The lectures in this class	Oct.	M	64	16	20								
		F	72	19	9	Total	68	18	14	M	24	16	60
	Jan.	M	74	16	10					F	8	26	66
		F	54	23	23	Total	64	20	16	Total	16	21	63
19. Hard work	Oct.	M	86	2	12								
		F	72	15	13	Total	79	8	13	M	8	12	80
	Jan.	M	78	14	8					F	15	13	72
		F	75	11	14	Total	76	13	11	Total	11	13	76
20. Required courses	Oct.	M	48	36	16								
		F	48	30	21	Total	48	34	18	M ^c	22	32	46
	Jan.	M	36	52	12					F	14	17	69
		F	48	38	14	Total	42	45	13	Total	18	24	58

^a"A"—statements showing attitude of acceptance; "R"—statements showing attitudes of rejection and/or hostility; "N"—statements classified as neutral.

^b"A"—percentage of individuals who changed statements in direction of more acceptance; "R"—percentage who changed statements in direction of more rejection; "NC"—percentage who did not change statements in either direction.

^cAverage of the percentage for each sex group.

^dName of instructor.

The results of the study were then studied in the light of the objectives and methods of the course, in order to isolate clues which might reveal the extent to which attitudes of student might have been affected by the course. In this, the evaluator was concerned with two aspects of the course:

1. The prime objective of the course as taught by this instructor was to promote the student's understanding and acceptance of himself and others. Inasmuch as "acceptance" is largely an attitudinal form of behavior, he was interested in finding any evidence which revealed the presence or lack of growth in this direction.

2. The instructor had attempted in this course to make it possible for students to discuss problems and issues in a permissive and accepting atmosphere. He was interested to see whether he was successful in making the class as permissive as he had hoped, and, if so, what effect this permissiveness would have on students' attitudes and their willingness to express points of view which they might otherwise be reluctant to reveal.

C. FINDINGS

1. *Attitudes Toward the Course*

According to the ratings on Item 2 in Table 1, the majority of the group appear to accept the class, although there is a slight tendency for women to report an increased amount of hostility and rejection at the end of the semester. (There is a natural question which arises here: Were respondents thinking of "the class" as an educational experience or as a group or both?) Item 6 seems to indicate that the attitude of the students is fairly stable in the direction of being fairly accepting of the discussion experiences in the course. The situation regarding lectures (Item 18) is not so stable. Although the group tends to be favorably disposed toward the lectures, women tended to become more rejecting and men more accepting during the semester. This picture is reversed when it comes to attitudes regarding the instructor who gave the lectures and conducted the discussions (Item 12). The total figures reveal a slight decrease in acceptance of the instructor between the beginning and the end of the semester, but the totals do not tell the whole story. They do not show the marked decrease in the number of men accepting the instructor, nor the mild increase in the number of women responding in like manner. This change in response may be due to a genuine change in attitude toward the instructor, or it may indicate a willingness to express one's self more critically. On the other hand, psychology books (Item 5) come in for more critical attitudes. Students are fairly divided on this item with regard to accepting, rejecting, and neutral attitudes. There is

a slight tendency for men to become more accepting, and women to become more rejecting.

The instructor also administered an anonymous evaluational check sheet to the three groups at the end of the semester. This check sheet enabled students to rate various aspects of the course on a five-point scale, ranging from "5" for "excellent" to "1" for "poor." The composite rating for the three groups was as follows: Value of the course—3.52; Discussions—3.35; Lectures—3.52; Instructor—3.75; Readings in text—2.9. Except for the low ratings given to both "psychology books" by the sentence-completion test and "readings in the text" by the evaluation questionnaire, there appears to be little relationship between the two sets of data.

2. *Attitudes Toward the General School Situation*

The contrast between attitudes towards college professors (Item 16) and high school teachers (Item 14) is quite striking. The percentage of students accepting the former is higher than for any item except No. 19. Not only did a majority of students start the semester by accepting college professors, but they also increased their acceptance during the course of the semester. On the other hand, high school teachers have one of the highest percentages of rejection, and the trend during the semester appears to be in the direction of further rejection. This difference may be due to the tendency of people to scorn things they have outgrown—the first grader sneers at the kindergartener, and the high school student looks down on the eighth grader, etc. Or it may be due to the fact that college professors in the institution concerned actually are more pleasant and likeable than high school teachers. Or perhaps they have more time for students. The significance of the difference between the sexes at the start of the semester is obscure. Twice as many men as women start the semester by accepting high school teachers, but this difference disappears as the two groups near the end of the semester.

Item 20 (required courses) was inserted to elicit hostile comment from students and to see whether they would be able to accept such requirements as necessary. Approximately a third of the group are hostile to this aspect of school life at the start of the semester, and this proportion increases during the semester to almost half. This may be evidence of an increased feeling of freedom on the part of the student to attack regulations and requirements.

The item dealing with failure (No. 8) was also expected to elicit replies colored with anxiety. Comparison of items show that fewer students were

able to accept this aspect of life than any other item in the test, which speaks eloquently for the part which failure plays in our culture. Even so, there was a slight trend in the direction of accepting failure, although the change was restricted to men. Again, we may speculate that the more secure position of men in our culture may enable them to be slightly more impervious to fears of failure, or it may be that since men tend to receive lower marks than women, particularly in the years before college, they are more used to failure, or it may be that the course in psychology has helped them to accept the possibility of failure with somewhat less anxiety.

3. *Attitudes Toward Employment*

Getting a job (Item 11) was the target for much more hostility on the part of women than was the case with men, although the proportions accepting and rejecting this aspect of life equalized themselves at the semester's end. A review of the actual responses indicates that women displayed considerable anxiety about their ability to get jobs, presumably part-time work to help put them through college. Evidently the increase in the amount of acceptance revealed by these figures is due to the fact that as the semester progressed, some of the women were able to find jobs. Job-finding is more of a problem with college women than with men, hence it is to be expected that they should have more anxiety in this area.

There is a tendency for men to have more favorable attitudes towards employment (Items 3 and 17) than for women. This may be because they have more opportunities for employment, and because their services are valued more (i.e., they receive higher wages). There is a definitely favorable trend displayed by men during the semester toward working for other people (Item 3), which may also be colored by more actual experience with this side of life. Or it may be that the course in psychology aided men to become more accepting of the realities of life. Or increasing maturity may be a factor here.

Hard work (Item 19) has the highest proportion of favorable responses. It may be hypothesized that this phenomenon is due to the high value which hard work has in our culture, rather than to any liking for hard work as such. Being for hard work is like being against sin. This item was also highly stable and had the least directional shift of any of the items.

4. *Attitudes Toward Authority*

There are several items relating to authority, some of which we have discussed in other contexts above. Since all those discussed are colored by

other associations, it is impossible to know the extent to which the individual was responding to the authority aspects of, say, the college professor and the high school teacher, and the extent to which he was responding to their other functions and attributes. However, the item dealing with middle-aged people (Item 7) appears to be fairly well disassociated with other aspects and perhaps may serve as a "pure" authority symbol. There is a drop in the proportion of students reporting acceptance of middle-aged people during the semester. This, like the other trends we have noted in this study, may be due to a wide variety of factors. Two which suggest themselves are the tendency for young people of college freshman age to show increasing resentment of the control of their elders, and another may be a feeling of freedom to express this resentment. In any case, fewer students moved in the direction of greater acceptance of this item than was the case for any other item.

5. *Attitudes Toward Others*

Items 4 and 10 were constructed to elicit reaction toward persons of the same sex and the opposite sex. The cultural bias which makes girls more likable than boys appears to be operating here. Girls are liked twice as often as fellows, and it does not seem to make a great deal of difference whether men or women are doing the liking—the percentages are similar. Men expressed *rejection* for fellows less often than did women, even though the proportion *accepting* fellows was roughly the same. There was also a tendency of women to increase their rejection of fellows during the semester. On the other hand, the attitudes of both men and women towards "most girls" were roughly approximate at the start of the semester. The proportions *rejecting* "most girls" remained the same for both men and women, but the proportion of men *accepting* "most girls" rose sharply, while the proportion of women indicating acceptance declined. Increasing attraction of men to girls may operate in the latter case, but the converse to this does not appear. This, too, is a fact of our culture—women as a sex are generally more attractive to men than men are to women.

Girls who "pet" (Item 9) is an item which calls forth some interesting contrasts and metamorphoses. At the start of the semester, both men and women show disapproval of girls who pet, although it may be wondered whether men even of the low freshman age are being completely honest when most of them indicate that they are hostile to girls who "pet." By the end of the semester, men have completely reversed their stated attitudes, a majority of them expressing approval of girls who "pet." The

attitude of women is approximately the same as it was at the start of the semester.

People who are shy (Item 15) bring out mixed feelings among the respondents. About half the group expresses some impatience and hostility with regard to shy people, with women being more accepting of shy people than men. During the semester there is a slight trend in the direction of accepting people who suffer from shyness. Of all the items in the test, this one may come the closest in revealing self acceptance. Most college freshmen are either shy or think of themselves as shy, hence in responding to this item they are very likely to be reacting to qualities which are similar to their own. A review of the responses indicates that quite a few students identified themselves with this item.

Item 13 (marriages between persons of different races) was included as a measure of racial attitudes. It was deliberately selected as representing a position which is not currently accepted by most proponents of race equality as one of their goals. On the other hand, the willingness to accept interracial marriage is accepted by some as characteristic of a person who lacks prejudice. In any case, it represents a fairly extreme position in our present hierarchy of attitudes regarding race relationships. Approximately two-thirds of the students rejected the idea of interracial marriages at the start of the semester, but this proportion dropped one-half by the semester's end. The change was greater in the attitudes of the men, women's attitudes undergoing less change. Although this subject was not discussed in psychology class during the semester, it may be that the stress on the understanding and acceptance of others as individuals may have indirectly had its effect in changing this attitude. On the other hand, coming in contact with the student body of a college which is noted for its liberal attitudes may have had an even more decided effect. Or the change may be due to the factor that we have mentioned previously—the possibility that students, because of the permissiveness of the course as taught, feel somewhat freer to express themselves on controversial subjects.

D. DISCUSSION

The purpose of this study was to explore a relatively uncharted area of group life—the attitudes and changes in attitudes experienced by persons who have submitted to educational processes. Although a tremendous amount of research has been concentrated on the appraisal of growth of knowledge, information, and skills which presumably results from experiences in the classroom, relatively little work has been done to assess the

nature and extent of the changes in attitude. Yet this is an area that professional workers in education need to know much more about. There is so little that we know about what *really* happens to the attitudes of students as a result of their school experiences, yet their attitudinal patterns will be major factors in determining what use they make of the formal learning they have acquired in school. Indeed, their attitudes will determine whether they remember their school learning at all. Much of the research in the area of attitudes has been concerned with the conscious attitudes as reported by students. This means that participating students were aware that they were being tested on attitudes, hence may have been under some pressure, unconscious or otherwise, to distort their replies. Projective tests, like the *SCT*, can, if skillfully prepared, administered and scored, eliminate much of the prevarication error which partially invalidates the results of the more direct attitudinal questionnaires. Of the many projective devices available, the *SCT* appears to be the most useful, because it lends itself to group administration and because the respondents' answers may be focused on the areas of life on which data are desired. The present study demonstrates how the *SCT* may be used in measuring the presence and movement of attitudes within a group.

Although the data produced by this study provide material for interesting speculations as to why students feel the way they do and why certain attitudinal shifts occur or do not occur, it is only realistic to point out that criticisms may be directed at the use of the *SCT*.

The first concern of any evaluator is for the validity of his instrument. Does the *SCT* possess validity? In other words, how do we know whether the reported attitudes are actually present or that, if present, they have actually changed? The answer to this question is, of course, that we do not know. Rohde (4) claims high validity coefficients for a form of *SCT* used for personality diagnosis with high school students, whereas somewhat lower but still significant correlations are reported by Rotter and Willerman (5) and Rotter, Rafferty, and Schachtitz (6), using clinicians' judgments of the emotional maladjustment of respondents as a criterion. These studies seem to indicate that the *SCT* has some validity as an index to personality structure and dysfunction. However, although a strong probability exists that attitudes are dynamically related to personality structure, it does not necessarily follow that a test which effectively measures the latter will measure the former with equal effectiveness. Nevertheless, the position of the person who uses the *SCT* to measure the attitudes of a group is in no more vulnerable a position than the educator who tacitly assumes that the skills

and competencies which students reveal on classroom tests will be utilized by these same students outside of the classroom in appropriate situations. It may well be that additional research will reveal that the *SCT* is a better measure of attitudes and potential motivation than the typical classroom test is of the ability to apply skills in the world of reality. The indications are, of course, for more research on the validity of both kinds of instruments.

Another criticism which may be directed at the *SCT* is that, even assuming it reveals attitudes and changes, it does not indicate *why* students possess the attitudes indicated, nor why they change them. The answer to this criticism is that the results of most tests provide only partial answers to our questions. For example, a score at the tenth percentile of the Ohio State University Psychological Examination indicates that the subject is a poor risk for college, but it does not tell why he is a poor risk. In order to satisfy ourselves in this regard, we must accumulate additional data, which must be tied together with clinical insight and carefully structured hypotheses. Similarly, the questions and hypotheses which result from a review of the data resulting from the use of the *SCT* in attitudinal research must be similarly explored and tested by additional empirical data.

A more serious criticism is that which may be leveled at the use of the *SCT* as an evaluation instrument: Are the attitudinal changes the results of the instructional process? To what extent are they caused by extra-curricular events and forces? These are questions which cut to the very core of all curricular evaluation. For example, evaluation of the quantitative skill of children in the primary grades will reveal a steady increase in the ability to deal with numbers. It is common practice to assume that the school has brought about this change in the behavior of children. However, this assumption would be both difficult to prove or disprove. We are fairly sure that some children learn number concepts in their contacts with the world outside of school—perhaps some of them even learn number concepts *in spite of* their school instruction rather than because of it. In this case we fall back on our clinical judgments about what goes on in the classroom and assume, in the lack of additional evidence, that most of the gain in this function is the result of instruction. However, as we evaluate education on the high school and college level, we find less evidence to show that growth in knowledge and skill is due primarily to the effectiveness of instruction, rather than to the stimulating effects of the environment outside the school. Yet we continue to provide instruction and encourage people

to seek education, because we are subjectively convinced that it works in enough cases and is sufficiently effective to warrant our supporting it.

Thus the same questions which can be raised regarding the validity of the *SCT* as a measure of attitudinal change can also be raised regarding the validity of other instruments as measures of growth in the ability to apply knowledge and skill learned in school settings.

However, there is no great likelihood that the *SCT* will be accepted on anything like an equal basis with more conventional instruments of evaluation. In the first place, most of us are not ready to accept the need for measuring attitudes. In the second place, there are a number of technical problems which arise from the use of the *SCT*. Even when the scoring is as simple as the system used in this study, it is tedious and time consuming, and if, in the interest of economy and simplicity of administration, only one judge is used, there is a loss of reliability. Another difficulty is that a simple scoring technique like that used in this study can report only one dimension of the attitudes revealed in students' responses. For example, it would have been desirable to have rated responses according to the insight demonstrated, inasmuch as the improvement of insight was implicit in the curricular objectives of the instructor.

These difficulties probably preclude the *SCT*'s being used routinely as an evaluational device. However, because it provides data which cannot be obtained by existing instruments, its occasional use for evaluational purpose may provide educators with much valuable information regarding the possible effect of education on the attitudes of students. Perhaps the data presented in this study will provide normative material which may be used for comparative purposes.

The *SCT* appears to have even greater possibilities as a research device. Through its use, researchers may be able to chart the ebb and flow of attitudinal changes in groups of various sorts. Its validity needs to be checked against various kinds of criteria before its reports can be accepted with confidence, yet its effectiveness as a research tool in personality research with individuals may be an indication of its possibilities as a device for similar research in groups.

E. SUMMARY

A 20-item sentence completion test was administered at the beginning and end of a four-month period to a group of college students enrolled in a first semester course in psychology. Responses were scored on a three-point scale, covering acceptance, neutrality, and rejection with regard to

elements presented by the stimulus material. Differences in attitude and change of attitude were noted when results were compared according to the sex of respondents and when the results of the first administration were contrasted with the second administration. The limitations and uses of the sentence completion as an instrument for curricular evaluation were discussed. Most of the criticisms which may be directed against its use as an indicator of the existence and change of attitudes apply also to other, more conventional forms of evaluational instruments. However, because of the experimental nature of the sentence-completion test and because of its tedious and time-consuming scoring, it appears to be more useful as a research tool than as an evaluational technique for routine use.

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THE EFFECTIVENESS OF PHOTOGRAPHS AS A PROJECTIVE DEVICE IN AN INTERNATIONAL ATTITUDES SURVEY:

I. RESPONSES OF 680 BRITONS TO 10 PHOTO- GRAPHS OF AMERICAN TYPES*

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A. THE PROBLEM

Any international attitudes survey must begin with the assumption that no one single technique can adequately describe an attitude complex, latent or manifest. A variety of techniques must be used to elicit responses that can then be analyzed for intensity, direction, content, and stability. The free and unstructured responses particularly can contribute to this evaluation process by supplementing directional choice responses. The problem, then, is to elicit those free and unstructured responses (a) that contribute materially to the analysis of the attitude complex and (b) that can be checked by empirical data (10, 13, 14, 19, 29, 33).

B. PROCEDURES¹

1. Construction of Questionnaire

In a survey of British attitudes toward America² it was necessary to elicit some free responses, especially about American individuals and American "types" so as to supplement directional responses to those parts of the questionnaire dealing with reactions to the Americans as a people and to the U. S. A. as a dominant world power. Consequently, 10 photographs of Americans were selected from the files of the U. S. Information Service of the U. S. Embassy in Grosvenor Square, London. These photographs were reproduced (Figure 1) with instructions:

Most people think of certain types when they think of Americans.
Do any of the pictures below seem like "American types" to you? Mark
an X under each picture that you would call an "American type" and
add a few words why you think so.

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¹Discussed in detail in *Internat. Soc. Sci. Bull.*, 1951, 3, 529-539.

²Conducted 1948-1950 under a Fulbright fellowship and a UNESCO grant.

2. Administration of Questionnaire

The questionnaire was given to 1,050 Britons to complete. Three methods of distribution were used: (a) about one-third were completed in a 90-minute period and overseen by proctors other than the author; (b) an-



FIGURE 1

other third to be returned by post were handed out at organizational meetings by the author; (c) the last third were mailed to every tenth person listed on the national panel of a professional polling agency. No more than one-third of the respondents were advised that the survey was being conducted by an American (17).

3. *Analysis of Responses*

Responses were analyzed for content, intensity, and direction (21, 34, 35), with the results to follow. Responses in all cases were related to data obtained by a content analysis of influential opinion source materials (14, 17), such as outstanding literary accounts of America by Britons from 1796 to the present time, selected mass-circulation national daily newspapers for the period 1947-1950, selected periodicals for the same period, radio programs 1948-1950, 16 surveys made previously by professional polling agencies and expert opinion.

C. THE SAMPLE

There was no attempt made to obtain a national sample. Instead an attempt was made to obtain respondents who were verbally inclined and who were active in groups or organizations. Since such respondents were likely to have ideas about Americans and, further, were likely to be able to express those ideas to people with whom they mixed, they were sought out as potential opinion leaders.

The questionnaire was handed out to 1,050 Britons for completion, and of these 724 questionnaires were returned, 8 of which were so sketchily answered as to be useless. Table 1 describes the sample of 716.

D. RESULTS

Of the 716 respondents completing the questionnaire, 680 made one or more selections of the "American type" photographs, the average selection being four photographs. Distribution of selections is listed in Table 2.

E. DISCUSSION

The respondents' voluntary remarks and related source materials make it apparent that there are four categories into which comments about "American types" can be divided: (a) refusal to recognize the concept of "types," (b) a belief that there are decided American types, (c) a belief that there are some probable American types, and (d) a belief that there are some that are not American types.

TABLE 1
THE SAMPLE
(*N* = 716)

<i>Age distribution</i>								
15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Unk.
76	198	114	59	61	55	42	98	69
<i>Class affiliation</i>								
"Working"	"Lower Middle"	"Middle"	"Upper Middle- Professional"				Other	Unk.
114	76	339	80				71	36
<i>Political preference</i>								
Socialist	Conservative	Liberal	Other			"None"		Unk.
285	215	129	36			21		40
<i>Educational attainment</i>								
8 years or less	Matriculation	2 yrs. Univ.	BA-BSc			Higher Degree		Unk.
143	163	203	97			70		40
<i>Rural-urban distribution</i>								
Rural	100,000	100,000- 500,000	500,000 1 m.			1 m.+		Unk.
115	242	142	16			123		68
<i>Regional distribution</i>								
London & Home Counties	SE	SW	Midlands- Lancs.	N & NE		Scotland		Unk.
178	48	68	110	52		137		113
<i>Occupations</i>								
Non- manual	Manual	Professional	Managerial- supervisory	House- wife		Univ. students		Unk.
179	58	112	43	36		270		18
<i>Frequency of organizational activities</i>								
Infrequent		Moderate	Frequent			Unk.		
115		363	204			33		
<i>Trips abroad (excluding USA)</i>								
None	1-3	4-8	9+			Unk.		
170	281	133	99			33		
<i>Trips to USA</i>								
	None	One or more				Unk.		
	567	116				33		

TABLE 2
DISTRIBUTION OF PHOTO SELECTIONS ($N = 680$)

Rank	Photo No.	Photo description	Frequency
1	1	Texan county sheriff	526
2	4	Midwest school executive	482
3	9	Air Force mechanic	474
4	7	Negro skilled TVA worker	358
5	2	Maine French-Canadian farmboy	231
6	5	N. Y. high school students	196
7	8	Middle-aged Red Cross volunteer	186
8	6	Elderly Texan couple at rodeo	171
9	3	Midwest farmwife	100
10	10	Conn. Kosher poultry farmer	42
Total selections			2,921

1. "No Types"

Very few of the respondents had any reservation or any questions about the use of the word "types" to describe Americans. Most of them used it as the definitive term for all Americans other than personal friends or acquaintances. What implications this usage has is best explained in the words of the very few respondents who objected to the use of the term: A 22-year-old Bristol ex-RAF crewman: "There is no such thing as type." A Cambridge University student: "Having studied human geography, I am of the opinion that there is no such thing as an American Type." A 43-year-old London lawyer: "I don't agree that definite types exist." A 46-year-old science teacher: "I don't think there is an American type." A 31-year-old steel production clerk: "Americans originate from so many different nationalities that there cannot be a 'typical' American face. Clothes, association with pictures seen in magazines, and Americans I have met provide a strong influence."

A 60-year-old retired schoolmistress: "One of my sisters lived for several years very happily in Virginia. But when I used to ask her 'What do the Americans think about so-and-so?', she would reply, 'America is a continent—NOT a country. You *can't* generalize about a whole people *like that*.' This made it rather difficult for me to do this part of the form."

A 64-year-old "pacifist and internationalist" who lived nine years in the U. S. and has been in 25 states: "I can never visualise American or any other *national* types when the country concerned is as large and as cosmopolitan as America. In my view, differences which are to be found, say, between New York American Jews and Minnesota Scandinavians, cotton-picking negroes and Detroit automobile craftsmen, or even beet-working Mexican-Texas peons and Pittsburg [sic] industrialists and so on, are so great and so illimitable as to rule out any possibility of 'typifying' an American. As well try to typify a 'European'!"

Some other respondents make reservations about the use of the phrase "American types" but proceed to use it as a means of expressing their ideas about Americans. An example of such reservations is the remark made by a university lecturer in physics who "lived a week with 100 educated Americans in the G.D. of Luxumburg [sic]": "I don't think that there is an American 'type' except in superficial items: spectacles (very characteristic), clothes and hair styles (men)."

Similar statements that "typing" cannot extend to more complex personal attributes or to "national characteristics" are infrequent. The distinction between "types" and persons is a difficult one that most respondents do not tackle, though the distinction made by a critic of *The Naked and the Dead* seems to carry the meaning implicit in most of the respondents' remarks: "The episodes remain contrived; the characters remain types rather than individuals" (11).

The distinction is rarely made as explicitly when it comes to evaluations of non-fictional Americans, though in practice the person and the "type" are usually separated, especially by those respondents who claim wide acquaintance with Americans. For the others, the main clues as to whether they are speaking of "types" or of individuals can be found in the content and tone of the remarks that they make about the photographs of "American types."

2. "Decided American Types"

"*Decidedly American*," a 36-year-old Lancashire ex-sailor who has put in at American ports, writes under one photograph. Judging by their popularity among the respondents, three photographs (Nos. 1, 4, and 9) merit this description. Respondents' remarks and source materials explain this popularity.

a. Dress and physical characteristics. Ordinarily the task of identifying

an American is simple, the respondents say: they listen for an accent. Past that, the easiest ways of identifying an American are by dress and physical characteristics. "Items of dress always seem to convey an 'American,' e.g., hat, tie, shoes, and the cut of a suit," says a 56-year-old company director of a small engineering firm. A 22-year-old university student expresses it: "The American appearance lies more in their clothes."

The more specific references to dress are many. The "10-gallon hat" of the Texas sheriff only once gets watered down to a "2-gallon hat." The Texan's "vulgarily patterned tie" and the school superintendent's bow tie and pince-nez are seldom missed. The Air Force mechanic's jockey cap draws a wide variety of comments.

There are many remarks about physical appearance also. The Texan has "a fulness of face which the British well-built man usually lacks" and is "probably sunburnt." "His facial pattern conforms to the standardized version of a tough guy a la Humphrey Bogart," another writes. The school superintendent has the "American profile" and suggests "well-fed" to several respondents and to others: "pudgy face," "soft from much eating of ice cream," "fleshy face," "large Rooseveltian jowl." Many of the same descriptive phrases are used to describe the Air Force mechanic whom some observers call "the younger type" of the school superintendent. "The open-air, virile, well-fed look, features soft not rugged" is added to by another respondent who evidently speaks from experience: "A rather over-fat, well-fed, but paste-y faced look which many of the GIs appeared to have."

"The well-fed look," then, is common to all three "decidedly American types." Facial types differ, however. The fleshy-faced school superintendent and Air Force mechanic are one type. The thinner "a la Humphrey Bogart" face of the Texan is another. The same contrast can be found in body types. The fleshy-faced pair tend to stoutness; the Texan is of "slim, lean, nervous build."

The combination of physical characteristics and dress are important to the British respondents since it offers an excellent way of distinguishing Americans from Britons who wear American-style clothes, like the universally disliked "spiv"³ or sharpsters who "have the American styles copied in an

³Definition of a "spiv" by a juvenile court authority: "He has long hair, but it is oily with grease. His clothes are not ragged, but they are cut in such a fashion as to make you sick. He has shoes on his feet but they are of a revoltingly brilliant colour. He wears a fantastic tie that is dazzling in its hideousness" (from *The Sunday Express*, 1 October, 1950).

exaggerated form" as *The Daily Mirror* said in a feature article on American clothes on 28 December, 1948. The American may not always be so harshly judged as respondents' remarks make clear.

b. *The Texas County Sheriff* (No. 1). Most of the remarks about the Texas sheriff are concerned with his dress and western origin rather than his personal attributes. Only three of the 526 respondents fail to identify him properly: a 66-year-old housewife who is reminded of the "Pilgrim Fathers," a 52-year-old seaman who thinks he is "a newspaper reporter," and a 75-year-old political organizer who thinks he "looks like a Yankee filibuster." All of the others agree that he is a westerner (occasionally a midwesterner) because of his "cowboy hat" and because he is "a Texas type." Those who identify him as a Texan include respondents with as diverse backgrounds as a 17-year-old sheetmetal-worker apprentice two years out of school, a 27-year-old teacher who taught in 1949 in an American school, and a 74-year-old retired doctor who had never been to America.

A survey of source materials explains the popularity of the "Texas type." For well over a hundred years the westerner has been a standard item in British literary accounts of America. At first, he figured as an important controversial figure. After the Napoleonic Wars many Britons sought to escape hard times by emigrating to North America which had become much more accessible with the introduction of trans-Atlantic steamships in 1819 (27, p. 79). Those Britons at home who encouraged emigration (or at least used its threat for their own political ends) wrote glowing accounts of the westerner. He is "tall and well-built, bony rather than fleshy . . . whose first business is to live in ease and plenty," the radical politician William Cobbett wrote of him in 1818 (27, p. 65). Captain Basil Hall, a staunch Tory and bitter foe of emigration, in 1827 saw another picture: "A smoky log hut, 10 feet by 12, filled with dirty-faced children squatted around a hardy-looking female cooking victuals for a tired woodsman seated at his door" (27, p. 116). The discussion continued in these contradictory veins until Victorian prosperity eased the emigration problem.

Then the portrayal of the romantic, picturesque westerner began. Book titles like *An English Sportsman in the Western Prairies, 1861* (27, p. 504), began to abound. The far-westerner and the south-westerner emerged as distinct "types" from the earlier western emigrant or woodsman. In 1862 Edward Dicey witnessed in Washington, D. C., "a company of wild Texas cavalry, rattling past with the jingle of their belts and spurs" (27, p. 277). The picture varied little after that time, and to the relatively small, select public that read books in the early and mid-19th century, the westerner as

a "type" was already well established. Time has not changed the picture as a passage from a well-received book of 1950 illustrates: "Our driver was a cowboyish-looking fellow with one of those big gray felt hats which they measure by the gallon" (16, p. 96).

This image became startlingly clear to a much larger British public in mid-Victorian England with the influx of travelling rodeos and wild-west shows. "Buffalo Bill" Cody and Annie Oakley were summoned to command performances before Queen Victoria; the same "Annie" to Irving Berlin's music was regretfully bowed off the London stage in 1950. Its companion piece *Oklahoma!* ran for three years and five months and according to the *Daily Express* of 15 August, 1950, attracted an estimated three million people who paid £1,300,000 to see it.

Time has not dimmed the luster of "Buffalo Bill" either. One respondent, a 16-year-old London clerk-typist, labels the Texan photograph "Buffalo Bill." In 1948 another self-announced "Buffalo Bill" in full regalia in a third-class railway carriage in South Wales told his interested audience in a strong cockney accent about his television debut the night before while "Annie," his wife, proudly displayed her whip bruises and damned the cramped stage. And occasionally the unlikely figure of a juvenile cowboy can be seen in the crowd around the Peter Pan statue in Kensington Gardens.

BBC has perpetuated the wild west legend in its distinctively sedate manner. There was in 1950 one weekly feature, *Big Bill's Prairie Roundup With the Old Cowpuncher and the Bunkhouse Boys*, a weekly serial *Riders on the Range* and a Sunday morning program *Way Out West*. These programs were never subjected to inquiry by a select committee as the unfortunate *Dick Barton* was, but whether the "hell-bent-for-leather" element among the younger listeners was satisfied is questionable. The BBC evidently considered it no problem.

Cartoon strips and comic books, too, suffer severe restrictions in their presentation of the cowboy since newsprint is so scarce. The Communist *Daily Worker* (always interested in the effect of "decadent" American culture on Britain) happily reported on 2 March, 1950: "American comic supplements, on which Britain has been spending £100,000 a year in dollars, are at last to be banned."

Any serious loss, however, in radio and comic strip presentation of the westerner is more than made up by the films. In large industrial cities, cowboy films are certain money-makers. In Glasgow there are cinemas (known to the trade as "ranch-houses") that show nothing but western films. While

undoubtedly the western film's entertainment value is the first thought that occurs to many of the respondents, one sees more significance in the consistent portrayal of the cowboy: "He is presumably a type of 'culture hero.'"

Whether as a cultural symbol or as entertainment, a contemporary testimony to the acceptance of the cowboy was made in a BBC broadcast and reported in *The Listener* of 24 August, 1950 (p. 262): "It's a very curious thing, but when the English people speak of cowboys it is as though they were speaking of an extinct race. Cowboy films and books are classed with historical novels as though they described a bygone age." He is better described as a completely accepted figure about whom little controversy could take place. This may well explain why so few comments on the personal attributes of the Texan sheriff are offered (in contrast to many such comments on other photographs). The film critic of *The Manchester Guardian* confirms this view in an article on 13 July, 1950: "... a thoroughly competent use of the elements which have kept the 'Westerner' going these 40 years. One of the few ways in which nowadays any novelty is introduced into the formula is that of turning stars famous in other walks of life into cowboy heroes. In *Winchester 73* it is the turn of James Stewart; he discards his usual mild manner and shoots it out with the roughest of them." No description of the cowboy's attributes seems needed. One respondent, a 24-year-old Londoner in teachers' training, tries a characterization: "a generally uninhibited attitude to life" which the novelist, Anthony Trollope (like his mother, not always the kindest critic of America) said more definitively in 1862: "I cannot part with the West without saying in its favour that there is a certain manliness about its men which gives them a dignity of their own. Whatever turns up the man is still there—still unsophisticated and unbroken. Food, newspapers, and brandy smashes suffice for life; and while these last, whatever may occur, the man is still there in his manhood" (27, p. 298). The uninhibited manliness of Texans is well established.

c. *The midwestern school executive* (No. 4). The photograph of the school superintendent evokes many conflicting remarks from the 482 respondents. One sizable group identifies him as a political leader only, another as a business leader only, and a third smaller group as a combination of the two. Again, as with the Texan, many respondents are content to identify him and to omit references to his personal attributes, not because he is a well-accepted fictional figure but because he is a controversial contemporary about whom there is no general agreement.

In the case of the political leader, most respondents stress similarities to

contemporary political personages. One respondent is reminded of General Marshall, eight of the late President Roosevelt, and 28 of President Truman, "and Truman's picture has been well distributed," an Oxford University student explains. Other respondents speak of "Time-type pictures of the senator type" and the "American statesman type" without further elaboration. No one mentions personal contact of any sort with American politicians or diplomats. All knowledge of "the American political type"—and this is "type" exemplified—comes from purely secondary sources of information, such as the press, films, the radio, books, public speeches, and private conversations, not from personal contact.

Most American political leaders, especially Presidents, have been portrayed sympathetically in British books. There have been notable exceptions such as the deliberate slighting of the arch-republican Jefferson or Matthew Arnold's dismissal of Lincoln: "He has no distinction" (6, p. 199). The esteem for Washington and more recently for Franklin D. Roosevelt can only be called remarkable. "F. D. R.—the man that *was* America" the London *Daily Mail* said on 25 September, 1950. "Roosevelt's Fifth Term" the *New Statesman and Nation* announced Truman's re-election in 1948. Conservative and Socialist alike praise him.

Comments about other political leaders have been less comprehensive and sympathetic. Since World War I particularly criticism of Congressmen has predominated; the Senate's repudiation of Wilson and the League of Nations has rankled in British memories. The Senator is considered fair target for criticism today. When a congressman advocated using the atom bomb, the Communist *Daily Worker* promoted him to Senator. In the quality paper *The Observer* of 11 June, 1950, when some American had to be made the author of the definition of social science "one individual or group telling another group how they should live," it became "the United States Senator." The extent to which Senator McCarthy has further lowered the reputation of the Senator is best illustrated by a letter in the middle-of-the-road *Manchester Guardian* on 31 August, 1950. The writer, a well-known author, replies to an earlier letter: "Mr. Evans says, 'Americans have learned that American philosophy is not exportable and rarely welcomed abroad.' Is this not largely because of the very low quality of what has been offered for export? When restricted to a choice which might be summarized as 'McCarthy or Molotov' it is not surprising if many consumers consider 'Molotov' to be slightly less disgusting." With the notable exception of the late Senator Vandenberg there has been little British praise of senatorial conduct at home or on overseas junkets. Generally this can be attributed

to complete lack of comprehension of the intricacies of American politics. When Representative Fogarty succeeded temporarily in tacking a rider on the Foreign Aid Bill of 1950 that withheld funds to Britain until Ireland was "united," one correspondent wrote from Washington: "Many British people must find their understanding of the American political system more gravelled than ever" (7). There are perhaps good reasons why the respondents did not care to ascribe personal attributes to the "political leader type."

The same reticence is not apparent in the case of the respondents' remarks about "the typical American businessman." He too is a "type" rather than an individual, knowledge of whom is derived from secondary sources, but he is a highly controversial character as well. Just as the western emigrant of the first three decades of the 19th century was the whipping-boy of the anti-republican Tories of that day, the American businessman is the whipping-boy of the Socialists today.

The respondents' remarks about him follow political preferences very closely. Three comments from Socialists are: "One of the Babbits of America"; "Elderly businessman, rather a pathetic Babbitt character"; "A grab-all American businessman." The authors of these phrases are: A 58-year-old "working class member of an education committee responsible for youth clubs, etc."; A "middle class Socialist"; A 21-year-old "working class university student."

In contrast are these statements: "The calm, self-assured manner of an American businessman"; "Most important type of American on this page, because the vitality of 'big business' is so important." And the authors of these statements: "A middle class, Conservative, banker"; "An upper middle class Liberal university student."

These are but five of many statements that illustrate the differences that follow political preferences.

One effect of these judgments colored by domestic political considerations is to obscure any objective portrayal of the American businessman in most information sources. That has been so for at least 60 years.

The controversy stems from criticisms of both cultural and political leaders. Before 1900, Henry James and Rudyard had etched the American businessman with acid pens; G. K. Chesterton, J. B. Priestley and others followed. In 1906 with H. G. Wells' six-week visit to the United States, a stream of interested Socialist visitors began (27, pp. 326-329). Wells found American reformers like Lincoln Steffens, Ida Tarbell, and Upton Sinclair most active and the need for them most urgent. The rapid indus-

trial and economic development after the Civil War had brought with it many unsavory excesses. Violent strike-breaking, poor working conditions, cut-throat combinations, and severe cyclical economic fluctuations were to be found in the two decades from the Haymarket riot to Wells' visit in 1906.

The evil genius behind the scenes he found to be the "big-businessman." The debate still goes on. An outbreak of it occurred in August, 1949, when a Scripps-Howard correspondent wrote a series of anti-Socialist articles. *The Sunday Pictorial*, a tabloid with an estimated circulation of 5,690,000 lashed out at "...your Wall Street wolves or power-drunk political wire-pullers. . . . Too many of you Americans are being fooled by grasping bigoted tycoons." *The Daily Telegraph* of 23 August, 1949, reported a Socialist M.P. as saying in a public speech one day later: "The almighty dollar mentality of the American industrialists will not seduce Europeans to jettison their traditions of culture and civilization, even in the face of the Communist menace. We would rather take the risk of civilising Communism than of being kicked around by the unlettered, pot-bellied money-magnates of the U. S." Prompt disavowals by more responsible Socialists followed at once; the lapse back into the evangelical fervor of earlier Socialism was deplored and several better informed Socialists repeated that times had changed even if the ghosts of J. P. Morgan and Andrew Carnegie were occasionally still seen abroad.

Mr. Michael Foote, a Socialist M.P. and editor, had taken Mr. J. B. Priestley to task earlier that year for Mr. Priestley's remark: "If we imported American big businessmen or Russian commissars to Whitehall the result would be much the same." Calling this statement "wicked and dangerous nonsense," Mr. Foote hastened to enumerate the efforts in the U. S. to achieve sounder coöperation among business, labor, and the government, concluding: "And as a result of all these exertions President Truman was elected in a fight in which most of the 'economic bosses' were ranged against him" (9). It is a politician's rather than a political historian's judgment even if it is a commendable attempt to discuss American politics in their American context, a difficult feat when British domestic politics are at such a pitch that all political material is grist for the mill.

The non-Socialist press comments on the American businessman have been no more objective or detached. In 1950 *The Sunday Express* ran a full-page nostalgic feature on Andrew Carnegie. At about the same time in another paper an eminent critic spoke of "Yesterday's Idol," Mr. J. P. Morgan: "The idols of fifty years ago have been mutilated and turned into objects of contempt. . . . The combines which he created may have brought

riches and immense and dominant power, but they also introduced greater stability into the structure of American industry and finance. They tided the U. S. over a difficult transitional period. . . . The system which Pierpont Morgan represented no longer corresponds to the political or social conscience of the Modern American" (28).

A far less responsible columnist reported the same trend in his mass-circulation paper: "It seems the American rich are vanishing. Mr. John McClain, an accurate columnist-historian says, 'The American millionaire is doomed to extinction.' Even Wall Street is running articles about itself entitled 'The Twilight of Wall Street' or preparing a comic newspaper called 'The Bawl Street Journal,' kidding the big money era and advertising outings with free hot-dogs for hungry brokers" (18).

These few scattered admissions by both Conservatives and Socialists that changes in American society have affected the status of the American businessman are much more clearly presented by a British interpreter of America who is not interested in illustrating domestic politics with American examples. In 1934, Prof. D. W. Brogan warned: "American businessmen in numbers big enough to be significant are beginning to sell America short. If the American businessman got the loyalty of his employees it was because they were thought to be engaged in a common enterprise, the production of tangible wealth. That wealth is tangible goods, obviously 'useful goods' is still the simple faith of most Americans. . . . That is the American spirit and on that the American rich should work. There is more life in capitalism, especially in America, than most of my radical friends believe; but it is life on condition that the job of delivering the goods goes on and that the system does not become, or even appear to be, an obstacle to production" (3, p. 32, p. 43, p. 45).

Almost as a footnote, 16 years later the leading editorial of *The Manchester Guardian* of 24 May, 1950, had this to add:

The lesson of the 'thirties seems to have been well learned. Throughout the long boom an attitude of caution has survived in business; it has kept in check the sort of wild investment that helps to turn a recession into a sharp slump. If American business has thus acquired more skill, the government and the monetary authorities have so far kept in step. . . . In a current review Dr. Pers Jacobssen goes far as to argue that "both in its main political and economic ideas and in its institutional framework, the U. S. has probably changed more quickly and more profoundly than any other country in the western world." That is perhaps an exaggeration but it is certainly nearer the truth than English opinion—dominated by the issues of Socialism—generally recognizes.

The "issues of Socialism" being as strong as they are in both America and Britain, there is little hope that the more searching analyses of Professor Brogan and *The Manchester Guardian* will prevail. Instead the American businessman will be to some Britons: "Unlettered, pot-bellied"; "Grab-all"; "Abysmally ignorant" (8); "Power-drunk American millionaires" (20); and to others (all respondents of this study): "Calm self-assured manner"; "Satisfied good nature"; "Genial American businessman."

The same contradictions exist in the voluntary remarks by those respondents who call the photograph "the typical (as shown in England) American businessman or politician" who "looks like the sort of chap one would expect to see at any American political or business conference." When some respondents say "a type of American official" they evidently have in mind military-political-economic programs like ECA and the Atlantic Defence Pact, and the resultant "serious concerned air of the American with the cares of the world on his shoulders."

Others see him in an American social context: "American political or financial leader of wide interests and vision due to American culture rather than to breeding." More respondents see him in a British context in which both political and business leadership has traditionally been recruited from the educated class and enjoy the same prestige.

It is quite simple for an English Communist columnist to say: "Mr. Hickenlooper sounds like a comic-strip businessman. Actually he is an influential Republican Senator. Which, I suppose, is much the same thing" (20). Whether he is an "American political type" or an "American businessman" or a combination of the two, he is controversial. Consequently many respondents identify him by "type" and say little about his personal attributes past what their political beliefs dictate.

d. *The air force mechanic* (No. 9). There is no reluctance to make remarks about the personal attributes of the Air Force mechanic. First of all, there is no problem of identification for the 474 respondents. One hits it exactly: "He is an Air Force groundcrew man watching his aircraft come in." Others are equally explicit. "A GI Joe," says a 35-year-old trade union secretary; "very much like many GIs I have met" says a 25-year-old order clerk; "nearest to Americans seen here," says a 69-year-old retired railway passenger agent who lives near a large American airbase. Eighty-five other respondents also identify him as a "GI" or as an "American serviceman," while 51 associate him with baseball "which none of us understands or the fascination of the game for Americans" a 53-year-old bookstore owner admits. An 18-year-old comptometer operator and several other respondents

call him "typical American working class," evidently influenced by the "working cap" worn by European workingmen. "Vicky," a famous English cartoonist drawing "Faces from America" in *The News Chronicle* in 1949 has a "steelworker, Detroit" with a similar cap.

The model for all of these remarks was the GI of whom there were an estimated 2,000,000 in Britain during World War II. Then too, memories have more recently been stirred by the Korean War and by war films. Seventy-seven respondents alone mentioned *The Best Years of Our Lives* by name as the American film they best remember.

As a result, the "mighty GI," as one respondent calls him, draws by far the most searching remarks about his personal attributes, for example: "The sentimental-cum-revengeful look often associated with GIs"; "An air of readiness—suggestion of capability too"; "The unattached American male. The upswept cap principally influenced selection here. It emphasizes the paradox between care-free nonchalance and restless concentrated activity shown in the facial lines."

These statements were made in 1950 before the outbreak of the Korean War. The authors of the statements are: a 32-year-old Bristol cinema chain manager, a 41-year-old librarian of a "Public Health Society having contact with America through visit-American doctors," a 23-year-old Scottish commerce undergraduate "with American relatives."

Other more cryptic remarks sound as if they too came from personal experience. Time hasn't blunted all the unpleasant memories: "Boastful type"; "The couldn't-care-less attitude of the typical GI"; "Over-fat, paste-y faced GI"; "Typical gum-chewing Yank"; "The tough cynical face you could meet among American soldiers."

The more flattering personal qualities are not forgotten: "Self-confident, exuberant"; "The get-things-done type"; "Friendly and hospitable"; "Frank, open."

Seventeen respondents remark about the tilt of the chin and the "jaunty set of the cap": "We have seen more of this angle of America than of any other"; "A picture of popular 'into the future' American gaze"; "He looks to the future"; "He knows he lives in a free world and the world is his"; "He has health, strength, buoyancy, the 'New World' look."

All but one of these remarks come from respondents in their twenties. The older respondents are more reserved in their remarks though not more critical. *The Daily Mail* voiced a general sentiment when it welcomed American Air Force personnel to Britain on December first, 1948: "The

mass of the British people remember the GIs who lived among them, became their friends and fought by their side."

The advent of the Korean War brought the GI once again to prominence and illustrated his worth as the most powerful symbol of Anglo-American understanding at its most basic level, an understanding among ordinary individuals of both countries. Headlines featured the GI; dispatches were written constantly about his activities and reactions. A Fleet-street sub-editor of a mass-circulation national daily was fired for writing an uncomplimentary headline about him. *The Daily Worker* appealed to him rather than denouncing him, a singular tribute. *The Observer* on 16 July, 1950, alerted the British public to the profounder implications of the Korean War with: "When that day of triumph comes, as it surely will, do not forget the out-numbered, ill-equipped and hastily assembled GIs who were thrown into a desperate fight and developed the stamina that saved the day. Britain which built an Empire by fighting forlorn hopes, owes a salute to these young American soldiers."

All of this cannot be written off as newspaper rhetoric. The British appreciation of the GI and the GI's appreciation of the British was, and is, too fundamental for that. "The American Soldier" representative cross-section sample of 3,013 GIs named the British twice as often as all of the others combined as the ally liked "best just as people" (31, p. 564). Minor irritations aside, it seems generally to have been a mutual admiration, as most of the respondents' remarks show.

e. Summary. If the 680 respondents look at the Texan sheriff as the most accepted fictional character, and the "political-business executive type" arouses the most reluctance to analysis and general acceptance, the "GI type" succeeds where they fail. He provokes many-sided comment freely; he is known personally; he is many things to many people. More than that he illustrates the remarkable advantage of personal acquaintance over the usual secondary sources of information about "American types," such as shows and films in the case of the Texan and public debates in the case of the school executive. In effect, the GI alone is not a "type" in the restrictive sense of the word, as further remarks about other American "types" illustrate.

3. "Probable American Types"

"Probably American" is the comment that summarizes best the respondents' voluntary remarks about the less popular "American types" (Nos. 2, 5, 6, 7, and 8).

a. Dress and physical appearance. Again, many of the comments made

about these photographs are concerned only with identifying the "type" by dress and physical characteristics; fewer are concerned with personal attributes and more are involved in debate about controversial aspects of American life. The "vigour" of the Negro, the child's "T-shirt," the "loud sports jacket" of the high school student, "the type of spectacles, the uniform" of the Red Cross worker, and "the hat, the teeth, the spectacles" of the elderly man—all are mentioned by many respondents.

b. The Negro TVA Worker (No. 7). The remarks of the 358 respondents about the Negro skilled worker are so crudely "typed" as to be political commentary rather than assessment of an individual. Some respondents select his photograph because of his "general working equipment" or because "he must typify the coloured people." A few more voice a distinction that is seldom encountered in source materials: "He is an Americanised Negro"; "He is an American Negro not African"; "The American Negro is different in appearance from the 'true African' irrespective of clothes"; "He is not so negroid as most African negroes."

Another small number of respondents assign him personal attributes that are generally hackneyed and over-simplified: "Dreamy"; "Languid longing"; "Easy"; "Coal black mammy type"; "Typical rolling-eyed Bop or Jive fan."

Only four of the 358 respondents name less stereotyped personal attributes: "He looks intelligent"; "Resourceful, efficient"; "He has the necessary vigour for the job he is doing"; "He has an inferiority feeling marked by a He-Man attitude toward life."

But by far the largest number of remarks concern his social and political status, for example: "Blackman looks an underdog"; "Seems to show subjection by white Americans"; "Attitude reflecting inferior position"; "Descendant from slave type"; "Longing for emancipation"; "Is he dreaming of Africa?"; "Numb-ache."

The authors of these statements are from widely differing backgrounds: 23, apprentice engineer; 23, Edinburgh University student; 22, Edinburgh University student; 66, retired industrial worker; 30, automobile body draughtsman; 43, Anglican minister; 66, sub-dean of a cathedral.

The issue of "the colour bar" almost always obscures the individual Negro, although an occasional comment mentions the fact: "*Black Odyssey* is not a study of America's negro problem. Rather it is a record of negro difficulties" (26). "A vivid account of what it feels like to be an ambitious and sensitive American Negro in a region of the U. S. where the problems

confronting his people are more subtle than in the repressive South. There is a good deal for us in England to learn from this book" (1).

The Daily Worker, of course, has little use for any emphasis that is not political. In a review of *The Home of the Brave* on 5 November, 1949, it said: "He re-lives the painful incidents of the past and begins to gain a deeper understanding of himself. Here again is a weakness, because the fight against the colour bar is a political one. The remedy for the problem is not for the individual to adapt himself to his environment but to join with his fellows to remove the cause." The disarming simplicity of this idea is attractive enough to Britons that the Rev. Michael Scott, champion of the Negroes in South Africa, felt it necessary to begin his series of articles in *The Observer* of 20 August 1950 with a warning against such over-simplification: "If the so-called colour problem in South Africa is to be understood, it must be seen as a complex of economic, social, political, and psychological factors which are by no means easy to disentangle."

There are several reasons for the British over-simplification of the Negro problem, with none more important than the fact that they do not have the problem. As one commentator has said: "It is not easy from England to grasp the strength of so much American feeling on the colour issue. The issue plays no part in English life (outside a few small port areas). South Africa, the Rhodesias, and the West Indies are conveniently far away" (12).

Then too, for well over a hundred years much of the discussion of the American Negro problem in British accounts has been politically oriented, as, for instance, this excerpt from a letter in 1842 written by Charles Dickens to his friend John Forster: "The paltry republicanism which recoils from honest service to an honest man, but does not shrink from every trick, artifice and knavery in business; that makes these slaves necessary, and will render them so until the indignation of other nations sets them free" (27, p. 197).

At one time the critics that made political capital of America's Negro problem were right-wing critics predominantly; today most of them are left-wing critics. A book reviewer in 1949 had this to say: "Yet one has to ask whether in the end his liberalism and optimism are enough, whether mere enlightenment or the personal efforts of such leading Americans as Mrs. Roosevelt or Mr. White himself can go even part way in solving the race question as long as the strident and anarchic pressure-group system of American society remains intact. . . . Negroes have moved in masses to the North . . . but here new problems of cut-throat capitalist competition have met them" (12).

In 1948 the late Professor Laski wrote: "There is no basic difference between Nazi racial theories and those in general in the South. . . . The treatment of the Negro in the South induces in the white citizens all the evil characteristics of a Herrenvolk" (22, p. 469).

The Socialist editor of *The New Statesman and Nation* on 19 August, 1950, wrote that the Scottsboro trials "inevitably remind one of Dachau and Belsen." The non-Socialist reviewer of the same book in *The Times Literary Supplement* of 18 August, 1950, is somewhat more inclusive with "Auschwitz, Katyn, Buchenwald, and the 'corrective camps' of Russia and her satellites" and concludes with: "It is easy for Europeans—and dead easy for Russians—to make capital arguments out of Patterson's story. It is harder to advise Americans . . . how democratically to solve a problem not created by Americans in the first place and by now unparalleled in its complexities anywhere on earth. But one thing the Scottsboro case and Patterson's book show quite unequivocally: how to make it ten times worse."

The Daily Worker did make capital in a relatively long and restrained review that ended: "Even today while Truman and his propagandists prate of 'freedom' one of the Scottsboro boys is still in jail. Patterson knows he was lucky: 'The law of the white folks in the South is "Don't you dispute my word, nigger." If a white man says you did something you did it. . . . Colour is more important than evidence down there. Colour is your evidence. Black color convicts you. A light Negro stands a better chance in court than a black one like me. Colour sure is important in Southern courts. And what is in back of that? They just want us to work for nothing. They do this to us perfect in prison.'

"He tells of other frame-ups of Negro prisoners killed as examples to others to behave. As well as being enthralled, the reader is convinced by his evidence and his summing-up: 'What happened in the Scottsboro case wasn't unusual. What was unusual was that the world heard about it.'"

Two months earlier on 6 June, 1950, the Communists had made quite clear what rôle the American Negro problem played in their propaganda efforts. In a feature article on Paul Robeson *The Daily Worker* said: "The whole moral basis on which the cold war is 'sold' to millions of Americans is that the American and the British and French Empires are 'The Free World' with a democracy to be defended. Many Americans believe it to be true. But 15 million American Negroes are reminded every day of their lives that it is a lie; that they are not free, that democracy does not include them. And their attitude will affect 150 million Africans, 60 million Latin Americans."

These statements have the value, and the shortcomings, of simplicity in the presentation of their case, in contrast to the usual involved arguments on the other side: the slow progress toward the ultimate yielding of the problem (4), the Negroes' desire to work within the present American political system and to reform it (12), and the argument that no open disavowal of the American belief in the equality of man has been seriously made in the South (3, p. 278).

The full implications of the American Negro problem as a political controversy are suggested by three quotations. The first is by Prof. D. W. Brogan in a 1947 review of Gunnar Myrdal's *The American Dilemma*: "The Negro problem in the U. S. is a dilemma which is presented all over the world today to the defenders of the American free way of life. Every lynching or sanctioned murder in a convict gang, every political career like that of Senator Bilbo or Governor Talmadge is a renewal of intolerable scandals like those that threatened the authority of the Holy See" (3, p. 271).

Professor Laski said it more pointedly in 1948: "The U. S. has a long and honorable record of protest, as in the case of the Jews in Tsarist Russia and in Nazi Germany; but there can be no doubt that the sincerity of its crusades has been called into doubt and their effectiveness seriously weakened by knowledge of the record in the case of the Negro" (22, pp. 46-470).

Or as an anthropologist said in a broadcast of June 1950: "I feel sure that the Russian claim to have abolished the colour bar is a major factor in politics today" (24).

Occasionally through the political arguments voices are heard that progress is being made. In *The Times Literary Supplement* of 18 August, 1950, the reviewer of the *Scottsboro Boy* said: "Hope springs from two facts: the awakening of the South to its own travail, as evidenced in the recent striking reductions in the number of lynchings . . . and secondly, the spreading realization in all American society . . . that the Negro problem is but one (if the worst) aspect of an all-American problem yielding ultimately to all-American treatment."

In the course of a BBC series on "the colour bar" one speaker made this statement: "Today the social conditions of some Southern Negroes are still bad enough to cause concern, but the opportunities of economic advancement open to American Negroes are rarely equalled elsewhere. The significance of American experience lies just here: it was the emancipation of the slaves and in particular the prosperity and strength of leading Negroes—

not their 'downtroddenness'—that enabled them to assert themselves at home and often on behalf of aggrieved coloured races elsewhere" (25).

And the statement (which was used in another section of this survey of British attitudes) of a Socialist editor; Michael Foote said in *The Tribune* of 25 February, 1949: "Racial and religious discrimination is being attacked with increasing effectiveness on many fronts."

The 716 respondents of this study were not so sure that this statement was accurate as evidenced by their responses to it:

"Strongly agree"	18
"Agree"	186
"Strongly disagree"	29
"Disagree"	151
"Agree and disagree"	134
"No answer"	166
Unknown	39

Only a few of the 358 respondents who commented on the photograph of the Negro TVA worker expressed optimism: "English newspapers do not let us forget the 'colour bar' in America though they point out the progress made by many Negroes"; "Negroes seem to do more skilled work in USA than elsewhere"; "The self-confidence of the civilised Negro"; "The look of industrial efficiency"; "The rather more awake expression than the African"; "The highly skilled and sensitive American Negro"; "The nearest approach to a confident futuristic look I have ever seen in a Negro's face."

Several other respondents remark on the relatively better plight of the American Negro, influenced, no doubt, by the repressive policies of the Malan government in South Africa. If there is not a widespread conviction among the respondents that slow progress on the Negro problem is being made in the U. S., at least there is a vague general feeling that the situation contrasts favorably to the South African, whether the authorities and the press make the distinction or not.

The few films on racial discrimination have not clarified the problem of the Negro as an individual, to judge by general reactions. Reviews have been cautious, like the reviewer in *The Daily Mail* of 2 November, 1949: "only someone more familiar with America than I am can say whether the case is overstated." A spokesman for the London office of the Motion Picture Association of America says that *Pinky*, *Intruder in the Dust*, *Home of the Brave*, and such films were received in an uneasy silence by most audiences, and not generally considered good box-office.

The "Negro problem films," however, have served one useful purpose. An Oxford University student speaks of "the impact of films on my memory." Undoubtedly it is the memory of "the Negro GI who was so amiable when we met him during the war" that enabled many of the 358 respondents to make comments, 57 of them identify him as a GI. A 28-year-old Midlands telephone operator says: "We saw hundreds like him during the last war. Were always very polite."

It was a standard observation throughout Britain, that the Negro troops were better behaved than the white troops, which was attributed to their politeness in their relationships with the British. In return, the Negro GI's reactions to the English has been stated as very favorable with an occasional complaint: "We are treated not as soldiers but as something to be gaped at" (31, p. 544).

The limitations of British-Negro GI relationships were several: the smaller number of Negroes, the American policy of segregation extending to social functions, the lack of experience of many Negro GIs in dealing openly as equals with white people, and so on. While the Negro GIs served to stimulate interest in the Negro problem and to promote the rudimentary distinction between "the good ones" and "the bad ones," it seems to have left no widespread appreciation of the Negro as an individual. The 358 respondents either see him as a badly stereotyped figure or as a social and political problem with which they are not too well acquainted. He is the 29-year-old London typist's "very human but kept at heel by American whites" or the figure of the 49-year-old Bristol station-master who dealt first-hand with many American Negroes during the war: "the typical poor black."

c. *The Social or Family Types* (Nos. 2, 5, 6, 8). In contrast to the Negro, there are other aspects of American life that have received much less publicity and are much less subject to partisan considerations, though some interest and controversy about them does exist. The position of American women is an example. What Frances Trollope in 1832 found to be the insignificance of American women (27, p. 132) was generally seconded by later British writers until quite recently when the complaint is that they are too influential. Whatever her status, the American woman has always been a subject of interest to the British. The same might be said about American children, teen-agers, and elderly people, as the remarks of the respondents show.

Besides clothes and personal appearance, personal attributes are mentioned. The farm boy (No. 2) "suggests two things: (a) less discipline, (b) more naturalness" to one respondent. Others say: "Precocious"; "Care-

free"; "More mature"; "The Brooklyn Kid"; "The backstreet gumchewer"; "The naughty boy of American films."

There is general agreement that, for better or worse, the American child has "maximum freedom" and is "less conventional by our standards." It is a general conclusion that runs through British accounts of America. Harriet Martineau in the 1830's found freedom from strict supervision a necessity for the over-worked pioneer mother and thought it a good thing (27, p. 102). Most of the others didn't. Anthony Trollope spoke for the majority when he wrote in 1862: "Care-laden mothers, tryant children; American babies are an unhappy race; they eat and drink just as they please; they are never punished" (2, p. 279).

The same themes of greater personal freedom and precocity run through the comments on the high school students (No. 5), as well as some questions about the advisability of co-education: "Signify the youth of America today"; "Boys in America at this age are less shy of girls and their elders"; "Too mature for any English schoolgirl"; "They are young but look old and mature. Result of living at high speed only possible in America."

The authors of these remarks are: 18, schoolgirl; 37, teacher who taught a year in the U. S.; 43, housewife; 44, lawyer.

The comments of the younger respondents are mainly concerned with the effects of co-education: "The natural unselfconscious pair that typifies American education to me"; "American teen-age sophistication"; "Friendly and co-operative"; "Get on well together"; "More free and informal than the British."

Three respondents, however, have their doubts about the relationship: A 53-year-old schoolmaster: "Two stages; (a) Boy and girl interested in a globe—of all things, (b) 'Necking'—the real reason of interest."

A married 29-year-old railway clerk: "Not sure of the girl."

A single 23-year-old male university student: "A poised beautiful, interested, and educated girl—and most important, determined. Male acting purely as background is also revealing."

The dominant woman theme is found throughout the comments on the middle-aged volunteer Red-Cross worker: "The strong-willed American career woman"; "The strong determined look"; "The well-fed American matron with a kindly but slightly overbearing attitude"; "Well-fed, domineering"; "Typical harshness of American womanhood."

But it remains for a 65-year-old spinster schoolteacher to speak plainly: "I think only America produces just this type of battle-axe!"

The dominant woman theme is common enough in all contemporary

accounts of American social life. For example, an article in *The Daily Express* of 30 August, 1950, began: "Forty women at a tea-party in London yesterday revealed a secret—just how American women 'run the entire U. S.' The women represent the U. S. Federation of Women's Clubs. It has a membership of 11,000,000 and is America's most powerful opinion-forming agency."

An anthropologist in a much-quoted book of 1949 said: "The clinging mother is the great emotional menace in American life" (15, p. 45).

A reply in doggerel to Ogden Nash's *England Expects* said in part in *The Evening Standard* of 7 November, 1949: "They leave to become lawyers or go into businesses owned by their fathers who are owned by their mothers who are owned by their dear white-haired old grannies in pince-nez; . . ."

Some respondents see her as: "Sympathetic"; "Kind yet resourceful"; "Friendly and kind-hearted"; "Air of motherly geniality usually associated with American matrons"; "Maternal pride—Maw and her canteen."

Still other respondents consider her active life: "She looks as though she would enjoy organising and public life, public speaking, etc."; "The more responsible type of woman who believes in doing something practical for the community"; "This typifies the part U. S. women even when elderly and married play in really active affairs"; "She probably sent 'Bundles to Britain' during the war."

The varying backgrounds of the authors of these statements are: 38, art teacher; 22, surveyor; 20, photographer's assistant; 29, office receptionist.

The same themes of activity and pleasure are predominant among the remarks about the elderly Texan couple watching a cattle show (No. 6). To several respondents they are tourists who "enjoy globe-trotting." "Cheerful extraverts" sums up the many references to their "genial joviality" and their "carefree, happy air." Another respondent summarizes a general sentiment with "the Darby and Joan effect popularized by the films." Others say: "Both are elderly yet the husband still takes his wife with him when he goes to a game of some kind"; "Husband and wife really enjoying some spectacle, rarely seen in this country"; "Mirthful expression more restrained in English"; "They obviously enjoy relaxation more than the average Englishmen"; "Americans always seem to be happy and full of life."

Personal freedom, activity, and enjoyment of life at all ages is the note that most respondents strike concerning the American "social types." Tourists, magazines, and films have all in some measure contributed to these impressions, though information source material is often much more critical

than the respondents' remarks. For example, *The Sunday Pictorial* on 29 January, 1950, had an article entitled "Report on a Teen-age Nation" which said in part: "An almost fanatical American national cult that threatens the sanity of the whole world is the Worship of the Teen-ager. . . . There is danger of America forcing her Teen-age culture upon the world. . . . Teen-age folly isn't funny but *deplorable* and a disgrace to the country. For the sake of civilization and culture, Britain and other countries should resist the influence of America's teen-age complex."

Nevertheless, the respondents, with very little first-hand information, generally indicate their interest in the more appealing aspects of American social life. If there are differences about the value of some aspects of American social and family life, there is also much interest.

4. "Not American Types"

The respondents' interest, however, does not extend to all aspects of American life, as the voluntary remarks on the last two photographs indicate. Only 100 respondents select the midwest farm wife (No. 3) as an "American type." Very few make any comments. Beyond the 15 respondents who identify her as a "housewife in a country district" there is little general agreement. She is "the Mrs. Roosevelt type" to two respondents, "a Mormon" to another, "a member of an American Woman's Social Club" to another, "a typical gushing tourist" to another. Five think she is Polish, three a Negress, and one a Greek. As to personal attributes she draws only a few of the more familiar remarks: "Jolly"; "Friendly"; "Out-of-door type"; "Finds life good." Beyond that there is little interest indicated in her.

There is even less interest in the Connecticut Jewish poultry farmer (No. 10) who is selected as an "American type" by only 42 of the respondents. Among these respondents there is general agreement that he is an immigrant or a "Jewish-American of central European origin." No comments are offered as to his personal attributes or his social-economic status. There seems to be neither general interest or information about him or the farm-wife indicated in the respondents' voluntary remarks and there is little featuring of them in British accounts of America.

5. Summary

Interest and familiarity, then, explain the selection of eight photographs as "American types" and the rejection of two. Where interest is reinforced by current debate (as in the case of the Negro and the businessman),

selection is heavy. When the debate and consequently the information lessens (as in the case of the "social types") selection is less frequent. When there is no debate at all but general acceptance instead and ready familiarity (as with the Texan sheriff), the selection is very high. And finally, when the ready familiarity has been on the basis of personal acquaintance (as with the GI), the selection is not only high but comprehensive and many-sided appraisals result.

It is an indication of the general interest of the British respondents in several aspects of American life that 95 per cent of them made selections of "American types." The tone and content of the accompanying voluntary remarks are an important part of the pattern of ideas and feelings that they have about Americans and the United States.

F. CONCLUSIONS

Several conclusions can be drawn from this use of photographs in a questionnaire on British attitudes toward America.

1. Photographs are an excellent device in stimulating initial interest in a long, complicated attitudes questionnaire.
2. Photographs are an excellent device to use to break up the solid verbal appearance of a questionnaire.
3. Photographs are an excellent device for eliciting free responses.
4. The free responses elicited offer valuable clues as to the intensity, direction, and stability of interests of the respondents toward the subject nationality as indicated and as "types."
5. The free responses materially aid interpretation of responses to other parts of the questionnaire.
6. The general tenor of the free responses can be verified by data found in opinion source materials.

In conclusion, it can be said that the use of photographs as a projective device in this international attitudes survey was effective since the resultant free responses yielded much valuable data about the respondents and their attitudes toward America.

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LEVEL OF ASPIRATION AS A MEANS FOR DISCERNING BETWEEN "IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS*

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This study is an attempt to determine the effectiveness of a newly constructed group level of aspiration test for discerning between two "in-prison" groups of individuals and a group of high school seniors (an "out-of-prison" group).

A. THE CASSEL GROUP LEVEL OF ASPIRATION TEST (CGAT)

The *CGAT* is the standard form published by Western Psychological Services, Los Angeles, California (1). It is made up of 12 separate parts, all precisely alike. Only eight of these parts were utilized in the test administration for this survey. Each part of the test consists of four lines of capital *X*'s that are doubled spaced, as illustrated in Figure 1. The task is to draw a small circle at the top and bottom of each *X* as rapidly as possible for 30 seconds of time. The Hausmann Technique is utilized for administering, i.e., individuals are instructed that their scores will not be greater than their bid, and will be two points less than their performance for each *X* bid and not completed (2).

The following indices, or scores, from the *CGAT* were utilized in this survey:

Unstructured First Goal: The goal or number of *X*'s bid for Part I of the test. This index is presumed to be a quantified measure of the individual's level of aspiration uninfluenced by previous performance in a respective task; the position he places himself on an aspiration scale relative to other persons.

Mean Aspiration "D"-Score: The mean discrepancy between previous performance and current goal for Parts II through VII and disregarding the direction of that discrepancy, i.e., plus and minus. This index is presumed to be a measure of the "irreality dimension" of the individual's personality (3), the discrepancy between the world as the individual perceives it and the world as it really is. It is a measure of the level of aspiration of the individual as influenced by his previous

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Part I

Goal	X X	(30)
Expected	X X	(60)
_____	X X	(90)
(No. of X's)	X X	(120)

Number of X's completed _____ Score ()

FIGURE 1
AN ILLUSTRATION OF PART I OF THE CASSEL GROUP LEVEL OF ASPIRATION TEST

performance. The goal is believed to be representative of the world as the individual perceives it; while the performance score represents the world as it actually is.

Clinical "D"-Score: Computed exactly like the Mean Aspiration "D"-Score except that the direction of the discrepancy (plus or minus) is taken into consideration. This score appears to have a greater qualitative than quantitative significance; since a characteristic plus and minus oscillation of the discrepancy tends to balance-out and neutralize the quantitative value for many individuals. The chief clinical value appears to be the presence or absence of "atypical" aspiration responses (4), i.e., the "atypical" aspiration responses tend to characterize two separate levels of the "irreality dimension" of the personality, (a) the raising of a goal immediately subsequent to a failure performance, and (b) the lowering of a goal immediately subsequent to a success performance. Also, scores with a minus sign are presumed to indicate fear personality patterns characterized by emotional and intropunitive behavioral responses; while those with a plus sign are presumed to indicate non-fear personality patterns characterized by extrapunitive and cognitive behavioral responses.

Psychological Response to Failure: The difference between the performance for Part VII and the goal for Part VIII. This score was computed only when the performance for Part VII was less than both the performance for Part VI and the goal for Part VII. Test results indicate that these conditions are imperative to an empirical experience of failure, i.e., significant changes of goals following the conditions stipulated as compared to the conditions prior to them. By cutting the time of thirty seconds allowed in the previous parts to twenty-seven seconds for Part VII a presumed condition of "forced failure" is affected for most subjects. The figure of three seconds, for the cut in time, was arrived at through a process similar to that described and utilized by Fechner and Weber (5), and referred to as "just noticeable difference" (j.n.d.). It did not cause the individuals taking the test to suspect the time cut, for the most part, but caused a substantial reduction in the performance score.

Physiological Response to Failure: The difference between the performance for Part VIII and the mean performance for Parts V and VI. This score was computed only when the Psychological Response to Failure was computed. The thirty seconds allowed for Parts I through VI was allowed for Part VIII, and thus the subject was expected to do comparable performance with Parts V and VI. Since this performance was immediately subsequent to the presumed experience of failure in Part VII it has been described as the "Physiological Response to Failure".

B: GROUPS SELECTED

The total population of three selected groups was utilized in this study: (a) Delinquent Boys Group from a California Youth Home, (b) Penal

Women Group from a California Prison, and (c) the Senior Class from the Montebello Senior High School in California.

The Delinquent Boys Group was made up of 247 boys ranging in age from 12 to 18 years old, with a mean age of 15.1 and a standard deviation (*SD*) of 1.2 years. The *IQ*'s ranged from 60 to 130 with a mean of 89.7 and a *SD* of 15.0. Offenses as a basis for commitment were as follows: Sex offenses—28 cases—10 per cent; crimes against persons—40 cases—14.9 per cent; crimes against property—174 cases—64.7 per cent; and miscellaneous cases—27 cases—10 per cent. The sex offenses ranged from rape to perversion of many types with the characteristic one being sexual advances against five- and six-year-old girls (5 of the 26 described as rape with small children). Crimes against persons ranged from assault-and-battery to murder with the characteristic offense being assault with a deadly weapon (12 of the 30 cases described as assault with a deadly weapon). Crimes against property were characteristically burglary and petty theft, many involving the theft of an automobile or motorcycle. Miscellaneous offenses were characterized by such adjectives as "waywardness," "vagrancy," "non-conforming," and "psychopathic tendencies." Included in this latter group were several alcoholics, arsons, check passers, and narcotics.

The Penal Women Group was made up of 277 women ranging in age from 17 to 74 years old, with a mean age of 33.6 and a *SD* of 10.5 years. The Institutional Psychologist maintained that the records indicated the women to be of average intelligence and to have a mean scholastic achievement of about two years of high school. Offenses as a basis for commitment were as follows: Sex offenses—5 cases—1.9 per cent; crimes against person—87 cases—33.5 per cent; crimes against property—78 cases—30 per cent; forgery, embezzling, and bad-checks—70 cases—26.9 per cent; and narcotics and alcoholics—20 cases—7.7 per cent. In general, the crimes against persons were characterized by greater brutality than for the Delinquent Boys Group, and the crimes against property were less bold and more cunning.

The High School Senior Group was made up of 304 subjects, 118 boys and 117 girls. The group ranged from 15 to 18 years of age with a mean age of 17.2 and a *SD* of 1.7 years. The mean age for the boys was 17.4 and the girls 16.8. The *IQ*'s for the group ranged from 60 to 140 with a mean of 100 and a *SD* of 14.5. The mean *IQ* for the girls was 100.2 and for the boys 101.0. Scholastic achievement scores ranged from 6.0 grade to 14.0 grade with a mean *AQ* of 98.5 and with no significant sex differences.

C. EXPERIMENTAL DESIGN OF STUDY

The investigation involves a comparison of two "in-prison" groups of individuals with one "out-of-prison" group on five separate indices from the *CGAT*. Efforts were made to determine the effect of such uncontrolled variables in the comparisons as age, sex, intelligence, and schooling by additional correlation studies and inter- and intra-group comparisons.

The study, in reality, was an attempt to validate indices from the *CGAT* for discerning between individuals maintaining membership in "in-prison" and "out-of-prison" groups. Since validity is always interdependent upon reliability, an effort was made to assess the reliability of the two primary indices in the study, the Mean Aspiration "D"-Score and the Clinical "D"-Score.

Implicit in the experimental design is the premise that membership in the "in-prison" group is a direct indication of "delinquency proneness." The premise is based upon the prima facie evidence and empirical fact that the individual is in prison and thus must be assumed to have some adequate measure of proneness therefore. The pragmatic value of such an assumption seems to lie in the area of the clinical assessment of personality dimensions relative to mental hygiene practices.

D. FINDINGS

Findings for the five indices described above for the *CGAT* were sought for the following separate groups: (a) high senior boys, (b) high senior girls, (c) high senior totals, (d) delinquent boys, (e) women penal group, and (f) total penal group. These findings provide the following meaningful comparisons relative to our two general kinds of groups: (a—d) delinquent boys against high senior boys; (b—e) women penal group against high senior girls; (c—f) "in-prison" total against "out-of-prison" total.

1. Unstructured First Goal

Table 1 indicates test data for comparisons between the two kinds of groups on the Unstructured First Goal to the *CGAT*. For all groups involved in the study, the mean and standard deviation (*SD*) of this score is significantly greater for the "in-prison" groups than for the "out-of-prison" groups of individuals, and the index discerns reliably between members from the two kinds of groups at the 1 per cent level of confidence.

In all comparisons for this score involving sex differences, a—b and d—e, high senior boys against high senior girls, and delinquent boys against women

TABLE 1
COMPARISONS RELATIVE TO "IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS
FOR THE UNSTRUCTURED FIRST GOAL TO THE CASSEL GROUP LEVEL OF ASPIRATION TEST

Data	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delinquent boys	(e) Women penal inmates	(f) Total penal groups
<i>Unstructured First Goal:</i>						
Mean Score	37.95	33.35	35.95	49.7	39.65	45.55
Standard deviation	7.5	7.0	7.5	20.5	11.5	17.0
Range of scores	20 to 64	15 to 54	15 to 64	15 to 104	15 to 110	15 to 110
Number of cases	187	117	304	250	279	529
<i>Comparisons</i>						
Data	a-d		b-e	c-f	a-b	d-e
Difference between:						
Means	11.75		3.30	9.60	4.60	10.05
Standard deviations	13.0		4.5	9.5	0.5	9.0
Critical Ratios:						
Mean difference	9.04		3.51	11.42	5.47	6.7
Standard dev. difference	13.14		6.71	15.8	0.00	9.0

penal group, the mean and *SD* were greater for the boys than for the girls or women. In all cases the difference in favor of the boys was statistically significant at the 1 per cent level of confidence except the *SD* for the high senior boy and girl comparisons. In general, boys tend to have higher Unstructured First Goals to the *CGAT* than do girls or women and with greater variability or spread.

2. Mean Aspiration "D"-Score

Of the five separate indices utilized in this survey, this index appears to be the most valuable one for discerning between the two kinds of groups involved. This finding appears to be consistent with other investigators (6, 7, 8, 9). Table 2 indicates data relative to the reliability of this measure. The reliability is significantly higher for the "out-of-prison" group than for the "in-prison" group. This difference in favor of the "out-of-prison" group may be accounted for because of the longer range and greater spread of scores for the "in-prison" group which would tend to lower the *r* value.

Table 3 indicates comparisons for this index between the two kinds of groups. In all comparisons the mean and *SD* of this score are significantly greater for the "in-prison" than for the "out-of-prison" groups of individuals. This difference in all cases was statistically significant at the 1 per cent level of confidence.

TABLE 2

DATA RELATIVE TO THE RELIABILITY OF THE MEAN ASPIRATION "D"-SCORE AND THE CLINICAL "D"-SCORE FOR THE CASSEL GROUP LEVEL OF ASPIRATION TEST. ALL CORRELATIONS WERE COMPUTED BY THE PRODUCT-MOMENT TECHNIQUE AND CORRECTED BY THE SPEARMAN-BROWN FORMULA FOR ODD AND EVEN ITEMS

Index	Group	Number of cases	Product-Moment r	Spearman-Brown corr. r
Mean Aspiration "D"-Score	High total	241	.699	.82 \pm .021
Mean Aspiration "D"-Score	Delinquent total	193	.46	.63 \pm .043
Mean Aspiration "D"-Score	W. penal group	49	.47	.64 \pm .086
Clinical "D"-Score	High total group	268	.79	.88 \pm .014
Clinical "D"-Score	Delinquent total	139	.55	.70 \pm .044
*Clinical "D"-Score	U. Div. College	104	.776	.876 \pm .023
*Clinical "D"-Score	6th grade pupils	93	.796	.89 \pm .022

*Data obtained from groups not involved in this study and unpublished.

TABLE 3

COMPARISONS RELATIVE TO "IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS FOR THE MEAN ASPIRATION "D"-SCORE FOR THE CASSEL GROUP LEVEL OF ASPIRATION TEST

Data	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delin- quent boys	(e) Women penal group	(f) Total penal groups
Mean Aspiration "D"-Score:						
Mean score	2.57	2.92	2.78	5.69	4.84	5.32
Standard deviation	1.45	1.60	1.65	5.01	3.05	4.6
Range of scores	0 to 9	0 to 8	0 to 9	0 to 28	0 to 30	0 to 30
Number of cases	187	112	299	247	275	518
<i>Comparisons</i>						
Data	a-d	b-e	c-f	a-b	d-e	
Difference between:						
Means	3.12	1.92	2.54	.35	.85	
Standard deviations	3.56	1.45	2.95	.15	1.96	
Critical ratios:						
Mean difference	9.45	8.72	11.54	2.05	3.27	
Standard dev. difference	25.4	9.06	21.07	1.25	7.53	

Tables 4 and 5 illustrate a comparison of the range and distribution of the score for the two kinds of groups. The range for the "in-prison" group is three times that for the other, and both bi-serial r 's indicated that the Mean Aspiration "D"-Score could be used to discern reliably between the two kinds of groups of individuals at the 1 per cent level of confidence. The effectiveness of this score at varying cut-off points is indicated in Table 6. Optimum effectiveness for discerning appears to obtain at the 6.00 level. Here, nearly one out of every three of the 517 "in-prison" individuals are

TABLE 4
FREQUENCY DISTRIBUTION CHART FOR THE MEAN ASPIRATION "D"-SCORE FOR THE CGAT
COMPARED WITH "IN-PRISON" AND "OUT-OF-PRISON" GROUP MEMBERSHIP AND
ILLUSTRATING THE BI-SERIAL CORRELATION

Mean Aspiration "D"-Score Range	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delin- quent boys	(e) Women penal group	(f) Total penal groups
27-27.9				2	1	3
26-26.9				0	0	0
25-25.9				1	0	1
24-24.9				1	0	1
23-23.9				0	0	0
22-22.9				1	0	1
21-21.9				1	1	2
20-20.9				1	0	1
19-19.9				0	0	0
18-18.9				2	1	3
17-17.9				2	3	5
16-16.9				1	0	1
15-15.9				3	4	7
14-14.9				6	1	7
13-13.9				2	3	5
12-12.9				6	2	8
11-11.9				4	6	10
10-10.9				6	5	11
9- 9.9	1	0	1	10	12	22
8- 8.9	0	1	1	11	9	20
7- 7.9	1	3	4	12	10	22
6- 6.9	4	4	8	8	17	25
5- 5.9	10	7	17	16	21	37
4- 4.9	10	6	16	27	35	62
3- 3.9	33	29	62	32	35	67
2- 2.9	57	28	85	38	48	86
1- 1.9	29	49	78	54	48	102
0- 0.9	6	20	26	0	8	8
Totals	151	147	298	247	270	517

discerned with less than one out of every 20 individuals being selected in error.

3. Clinical "D"-Score

This score was so named because the qualitative attributes appear to be more important than the quantitative ones. The word "clinical" implies that the value of the score, psychologically, lies in a clinical inspection of the test pattern. The reliability data for this score has been included in Table 2. The reliability of this score has been significantly higher for the "out-of-prison" groups than for the "in-prison" groups, and has been considerably higher than the reliability was for the Mean Aspiration "D"-Score for either of the groups.

The chief clinical attribute of this score appears to be the distinguishing of "atypical responses" (4). "Atypical responses" have been described by Rotter as consisting of two separate types, each indicating a different "ir-

TABLE 5
AN ILLUSTRATION OF THE EFFECTIVENESS OF THE MEAN ASPIRATION "D"-SCORE OF THE CGAT FOR DISCERNING BETWEEN INDIVIDUALS MAINTAINING MEMBERSHIP IN THE "IN-PRISON" AND "OUT-OF-PRISON" GROUPS

**"In-Prison" Membership Indicated by all Mean Aspiration "D"-Scores Above Indicated cut-off point	Prediction error			Prediction accuracy		
	Number	Total	%age	Number	Total	%age
Mean Aspiration "D"-Score of 10 and above	0	298	0.0	66	517	12.7
Mean Aspiration "D"-Score of 9 and above	1	298	0.4	88	517	17.9
Mean Aspiration "D"-Score of 8 and above	2	298	0.67	108	517	20.8
Mean Aspiration "D"-Score of 7 and above	6	298	2.01	130	517	25.1
Mean Aspiration "D"-Score of 6 and above	14	298	4.6	155	517	29.9
Mean Aspiration "D"-Score of 5 and above	31	298	10.4	192	517	37.1
Mean Aspiration "D"-Score of 4 and above	47	298	15.8	254	517	49.1

*"In-prison" membership later defined as "delinquency proneness."

TABLE 6
A COMPARISON OF THE RATIO OF PLUS AND MINUS CLINICAL "D"-SCORES ON THE CGAT FOR THE "IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS

Data	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delin- quent boys	(e) Women penal group	(f) Total penal group
Clinical "D"-Scores with plus signs:						
%age	77	77	77	66	70	68
Number	110	98	208	158	105	263
Clinical "D"-Scores with minus signs:						
%age	23	23	23	34	30	32
Number	33	29	62	81	45	126
Number of cases	143	127	270	239	150	389

Data	Comparisons				
	a-d	b-e	c-f	a-b	d-e
Difference between percentages	11.0	0.07	0.09	0.00	0.02
Critical ratio of differences	2.39	1.37	2.65	0.00	0.54

reality strata" of the individual's personality dimension: (a) the raising of a goal immediately following a failure performance, and (b) the lowering of a goal immediately following a success performance; the latter indicating a higher level of "irreality." Two or more atypical responses appear to be characteristic of the more serious offenders in the "in-prison" groups; while for the "out-of-prison" groups rarely more than one atypical response appears in any record, and that one is usually of the type described in (a). This is consistent with Rotter's findings (4).

4. Psychological Response To Failure

Tables 7 and 8 indicate comparisons for this score between the two kinds of groups of individuals. No significant and consistent findings have been

TABLE 7
A COMPARISON OF THE PSYCHOLOGICAL RESPONSE TO FAILURE FOR THE CGAT BETWEEN
"IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS

Data	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delin- quent boys	(e) Women penal group	(f) Total penal group
Psychological Response to Failure:						
Mean score	3.89	4.48	4.21	4.03	4.36	4.20
Standard deviation	2.5	2.9	2.7	4.6	5.1	4.9
Range of scores	-2 to 13	-2 to 12	-2 to 13	-9 to 18	-9 to 18	-9 to 18
Number of cases	118	106	224	133	155	288

Data	Comparisons				
	a-d	b-c	c-f	a-b	d-e
Difference between:					
Means	0.14	0.12	0.01	0.59	0.33
Standard deviations	2.1	2.2	2.2	0.4	0.5
Critical ratios:					
Mean difference	1.53	0.25	0.00	1.69	0.58
Standard dev. differences	6.36	6.47	9.57	1.67	1.32

obtained in this study for this score. The pragmatic value of this score appears to be in its clinical significance and qualitative contribution to the individual's personality pattern.

5. Physiological Response To Failure

Tables 9 and 10 indicate comparisons for this score between the two kinds of groups of individuals. In all comparisons the "out-of-prison" groups have plus scores and of greater value than do the "in-prison" groups. In all com-

TABLE 8
A COMPARISON OF THE PLUS AND MINUS DIRECTION OF THE PSYCHOLOGICAL RESPONSE TO FAILURE SCORE FOR THE *CGAT* BETWEEN "IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS

Data	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delin- quent boys	(e) Women penal group	(f) Total penal group
Psychological Response to Failure:						
with a plus sign:						
%age	96	93	95	90	89	90
Number	113	98	211	120	141	261
Psychological Response to Failure:						
with a minus sign:						
%age	04	07	05	10	11	10
Number	05	07	12	13	17	30
Number of cases	118	105	223	133	158	291

Data	Comparisons				
	a-d	b-e	e-f	a-b	d-e
Differences in percentages	6.0	4.0	5.0	3.0	1.0
Critical ratios of differences	1.88	1.18	2.27	1.07	0.28

parisons the direction of the score and the deviation, favoring a plus score with less variability for the "out-of-prison" groups, was statistically significant at the 1 per cent level of confidence. The mean quantitative value for the high seniors, although higher, was not significantly different from the delinquent boys score. Individuals maintaining membership in the "in-prison" groups tend to have a greater number of negative, and in general a lower score than the "out-of-prison" groups. This score appears to have great value for discerning incipient and latent cases of hysteria.

6. Uncontrolled Variables

In all investigations there are usually many uncontrolled variables. Some of the obvious ones in this investigation appear to be sex, age, intelligence, and scholastic achievement. Table 11 illustrates data relative to these uncontrolled variables.

In comparing the "high senior boys" with the "delinquent boys" there is a significant difference between the mean ages for each group which might be expected to have accounted for the differences obtained. The mean difference being 2.3 years with a *CR* of 15.3. The difference between stand-

TABLE 9

A COMPARISON OF THE PHYSIOLOGICAL RESPONSE TO FAILURE SCORE FOR THE *CGAT* BETWEEN "IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS

Data	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delin- quent boys	(e) Women penal group	(f) Total penal group
Physiological Response to Failure Score:						
Mean score	1.54	1.25	1.40	1.51	0.33	0.87
Standard deviation	1.8	1.8	2.0	4.0	3.0	3.6
Range of scores	-8 to 8	-5 to 6	-8 to 8	-13 to 17	-14 to 29	-14 to 29
Number of cases	118	106	224	132	155	287
<i>Comparisons</i>						
Data	a-d	b-e	c-f	a-b	d-e	
Difference between:						
Means	0.03	0.92	0.53	0.29	1.18	
Standard deviations	2.2	2.2	1.6	0.00	1.0	
Critical ratios:						
Mean differences	0.08	3.29	2.30	1.45	2.87	
Standard dev. diff.	8.46	8.46	9.41	0.00	3.57	

TABLE 10

A COMPARISON OF THE PLUS AND MINUS DIRECTION OF THE PHYSIOLOGICAL RESPONSE TO FAILURE SCORE FOR THE *CGAT* BETWEEN "IN-PRISON" AND "OUT-OF-PRISON" GROUPS OF INDIVIDUALS

Data	(a) High senior boys	(b) High senior girls	(c) High senior total	(d) Delin- quent boys	(e) Women penal group	(f) Total penal group
Physiological Response to Failure Scores with a plus sign:						
%age	91	74	83	63	62	63
Number	107	78	185	83	97	180
Physiological Response to Failure Scores with a minus sign:						
%age	09	26	17	37	38	37
Number	11	27	38	49	59	108
Number of cases	118	105	223	132	156	288
<i>Comparisons</i>						
Data	a-d	b-e	c-f	a-b	d-e	b-d
Differences in percentages	28.0	12.0	20.0	17.0	1.0	11.0
Critical ratios of differences	5.83	2.14	4.26	3.47	0.18	1.89

ard deviations was .53 with a *CR* of 1.4. Data contained in Table 12 indicates no significant relationship between the principal index, the Mean Aspiration "D"-Score and age for either of these two groups. Thus the age differential, in this case, would not be expected to account for this difference.

In comparing "high senior girls" with the "women penal group" the difference in age was even more significant than for the two groups just referred to. The data in Table 12 indicates no significant relationship between age and the Mean Aspiration "D"-Score for the first of these groups, but the *r* of .20 + .062 for the latter appears to be significant. An inspection of the matrix indicates the relationship to have been obtained primarily

TABLE 11
PRODUCT-MOMENT CORRELATION INDICES BETWEEN SOME OF THE INDICES FROM THE
CGAT UTILIZED IN THIS SURVEY AND OBVIOUS UNCONTROLLED VARIABLES REFERRED
TO IN THIS REPORT

Variables	Group	Number	Corr. <i>r</i>
Mean Aspiration "D"-Score and <i>IQ</i> (intelligence)	High senior total	267	.005±.061
*Mean Aspiration "D"-Score and College grade pt. ave.	Upper div. college	101	.095±.099
Clinical "D"-Score and <i>IQ</i> (intelligence)	Delinquent boys group	236	.21 ±.063
Clinical "D"-Score and <i>IQ</i> (intelligence)	High senior total	267	.17 ±.060
*Clinical "D"-Score and College grade pt. ave.	Upper div. college	100	-.09 ±.099
*Clinical "D"-Score and <i>ACE</i> (Coll. entrance)	Upper div. college	99	-.087±.099
Clinical "D"-Score and <i>AQ</i> (Iowa Basic Sk. Test)	High senior total	267	-.016±.060
*Unstructured First Goal and college grade pt. ave.	Upper div. college	109	-.21 ±.092
Unstructured First Goal and <i>IQ</i> (intelligence)	High senior total	266	.042±.060

*Computed from groups not involved in this study.

TABLE 12
CORRELATION STUDIES INDICATING THE RELATIONSHIP BETWEEN THE MEAN ASPIRATION
"D"-SCORE AND AGE FOR THE GROUPS INVOLVED IN THIS STUDY

Groups	Number cases	Pearson <i>r</i>	Sigma of <i>r</i>	*Bi-serial <i>r^h</i>	Sigma of <i>r^h</i>
Senior High Boys	142			.13	±.12
Senior High Girls	127			.15	±.11
Delinquent Boys	242	.084	±.064		
Women Penal Group	241	.200	±.062		

*Dichotomy considered to be continuous rather than discrete, i.e., age 17 and above as compared to age 16 and below.

from a small number of women above the age of 50 years. Since the r is small, the practical significance would not be expected to have accounted for the differences obtained between these two groups in this study.

On the factor of intelligence there are significant differences between the "high senior boys" and the "delinquent boys," but none between the "high senior girls" and the "women penal group." The mean IQ for the former comparisons being 101.0 and 89.7 respectively with a difference of 11.3 and a CR of 8.69. The difference between standard deviations was .50 with a CR of .50. The factor of intelligence is presumed, on the basis of traditional studies, to be closely related to scholastic achievement, grade point average, and other scholarship measures. Data from Table 11 indicates no consistent significant relationship between either of the first three indices utilized in this study and age, i.e., Unstructured First Goal, Mean Aspiration "D"-Score, and Clinical "D"-Score. In several of the reports the r 's obtained indicated statistical significance, but in all cases were so small that the practical significance was negligible.

No attempt was made to match the age variable in this study for the following reasons: (a) previous studies indicated little relationship between age, as a variable, and other aspiration measures; (b) the same age group would not insure that the proneness for delinquency was not present, but as yet unapprehended by the authorities (here proneness is used indicating valid "in-prison" group membership empirically); and (c) the groups available did not lend themselves to such treatment.

No attempt was made to match the intelligence or scholastic variable since the mean scores indicated characteristic representativeness for the respective groups involved. The validity of the discerning effectiveness could only be determined on the basis of groups maintaining the cogent characteristic attributes of their respective groups.

E. SUMMARY

This study attempted to evaluate a newly constructed group level of aspiration test for discerning between 517 individuals maintaining membership in two "in-prison" groups, delinquent boys and women penal group, and 298 individuals maintaining membership in one "out-of-prison" group, a high senior total group.

Four of the five indices utilized from the test yielded significantly different scores between the "in-prison" and "out-of-prison" groups of individuals. The aspiration pattern for the former was characterized by a high Unstruc-

tured First Goal (usually above 38.0), a high Mean Aspiration "D"-Score (usually above 5.00), one or more "atypical" Clinical "D"-Scores, and generally a low and often negative Physiological Response To Failure. The "out-of-prison" group pattern was the converse of the one described.

The pragmatic value of this test might be considered from two separate approaches: (a) prediction of delinquency proneness (possession of personality and behavioral characteristic necessary for empirical membership in the "in-prison" group); and (b) the clinical and continuous assessment of the characteristic pattern of "goal-setting" and "goal-striving" of the individual.

Future studies should concern themselves with some attempt to determine whether the aspiration pattern is the manifestation of a situation, or whether from the pattern the situation emerges. While the aspiration method is chiefly concerned with a single dimension of the personality, the "irreality dimension," the approach is global in nature and of the projective type. The clinical potential of the method appears infinite in its scope and should be considered in all comprehensive personality evaluations.

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ETHNOCENTRISM AND THE SELF CONCEPT* 1

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A. THE PROBLEM

Studies by Adorno, Frenkel-Brunswik, Levinson and Sanford (2), by Bettelheim and Janowitz (4), Hartley (5), Ackerman and Jahoda (1), and by Allport and Kramer (3) have largely supported the view that ethnocentric or prejudicial attitudes play an important functional rôle for individuals entertaining them. In recent years, increasing stress has been placed on the "self concept" as a unifying central construct in psychological theorizing. Hilgard (6), for example, has pointed out the need to consider human motivation and defense mechanisms in relation to the self concept. It would appear that ethnocentric or prejudicial attitudes, in so far as they possess a utilitarian value for the individual, are meaningfully related to his self concept. Indeed, clinical studies of ethnocentric subjects by Frenkel-Brunswik (2), and Ackerman and Jahoda (1) lend support to such a relationship.

Rogers (10) has hypothesized that appropriate changes in an individual's self concept would be accompanied by attitudinal changes toward others. Studies by Sheerer (12), Stock (14), and Phillips (9) support him and suggest that as there is an increase in the degree of acceptance and respect for the self, there ensues an increased understanding of others and a greater acceptance of others as separate individuals. Rogers declares that the implications "... are such as to stretch the imagination. Here is a theoretical basis for sound interpersonal, intergroup, and international relationships" (10, p. 522).

It appears from this that ethnocentric or prejudicial attitudes may be modified or changed as the self concepts of ethnocentric individuals are appropriately altered. However, this formulation tends to ignore the social or cultural matrix within which such attitudes are operative. It may be that ethnocentric attitudes, buttressed and supported as they are by widely held stereotypes, will be resistant to change even though the self concepts of individuals holding them may have been altered. The present investigation, although cognizant of this possibility, directs itself specifically to

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the implications of self concept theory. It is designed to study experimentally the relationship between (a) ethnocentric attitudes and the self concept, and (b) changes in the self concept and attitudinal shifts. In that part of the investigation which is reported here, two hypotheses were formulated.

(a) That a relationship existed between ethnocentric attitudes and the self concept.

(b) That alterations of the self concept will be accompanied by changes of ethnocentric attitudes.

It was assumed that it was experimentally possible to delineate subjects' self concepts adequately and that psychotherapeutic experience offered an effective means for promoting self concept changes.

Concepts employed in the study were defined in the following fashion:

(a) *Ethnocentric attitudes*: Levinson's definition was adopted. "Ethnocentric attitudes are those based on pervasive and rigid ingroup outgroup differentiations, involving stereotyped favorable views of the ingroup and a tendency to be submissive to this group, and a *hierarchical*, authoritarian conception of group relationships in which ingroups are dominant and outgroups rightfully subordinated" (2, pp. 150).

(b) *Self concept*: That picture which the individual holds of himself, of his abilities, characteristics, and worth.

(c) *Idealized self*: That self concept which the individual would like ideally to be characteristic of him.

B. PROCEDURE

The California *E* and *F* Scales were employed as providing measures of ethnocentric attitudes and underlying personality dispositions respectively. Subjects' self concepts were investigated through *Q* technique procedure (13) by means of an array of 180 statements referring to positive and negative self evaluations of 90 traits. These referred to values, self characteristics, and relations to people. These traits were selected by three clinical psychologists from a larger reservoir of statements gathered from various sources or else constructed so that the most important aspects of the self concept, as seen by them, would be represented. For convenience, these were broken into three sets of 60 statements which were separately distributed into a range of 11 categories of applicability according to *Q* technique procedure. The following are random examples of the self concept statements:

22. I have confidence in my ability to have good ideas and plans.

39. It's usually my own fault when I run into difficulties or meet with failure.

133. I am seldom tempted to do anything wrong.

175. I have always tried to be what others thought I should be.

Since ethnocentric attitudes were being investigated, only white Gentile subjects were considered. Twelve male, white Gentile patients who had been hospitalized in the neurotic wards of a large Veterans Hospital were chosen for study. Subjects were 22-34 years of age, belonged to the lower or middle socio-economic status levels, were of average to superior intelligence, and had from 10½-14 years of schooling. The therapists who participated were, with the exception of one psychiatric resident, all clinical psychologists with previous psychotherapeutic experience. Their therapeutic orientations were essentially eclectic representing client-centered, psychoanalytic and Adlerian approaches. A common aspect to the therapeutic approach was an accepting, permissive attitude on the part of all therapists.

The 12 subjects were given the California *E* and *F* scales prior to assignment to a psychotherapist for treatment. Each was also presented with the self concept trait sample of statements and asked to distribute these according to the following instructional sets:

(a) What is characteristic of him as he actually saw himself.

(b) What he would like ideally to be characteristic of him.

Retests with these various procedures were administered at the conclusion of psychotherapeutic treatment which averaged three months' duration.

C. RESULTS

The initial or pre-therapy self concept distributions were intercorrelated and factor analyzed by means of Thurstone's centroid method. Three bipolar factors were disclosed as indicated in Table 1. Factors *A* and *B* were

TABLE 1
PRE-PSYCHOTHERAPY SELF CONCEPT ROTATED FACTOR MATRIX

	A	B	C	<i>h</i> ²
1	.64	.12	-.11	.44
2	.70	.17	-.15	.54
3	.73	.22	-.20	.62
4	.66	.17	-.10	.47
5	.58	-.06	.00	.34
6	.44	.35	.00	.32
7	.27	.07	.28	.16
8	.27	.15	.35	.22
9	.23	-.18	.36	.21
10	.18	-.20	.31	.17
11	.30	-.60	.13	.47
12	-.14	-.64	.00	.43

identified as referring respectively to "self-esteem and self-reliance" and "lack of awareness and of anxiety concerning problems of impulse and hostility control." Factor *C* could not be identified. Rank order correlations, between these factors and initial *E* and *F* scale variables disclosed 17 significant correlations, reproduced in Table 2. Only two such significant relationships could be expected by chance. Again, when correlations between initial

TABLE 2
RANK ORDER CORRELATIONS BETWEEN PRE-PSYCHOTHERAPY SELF CONCEPT FACTORS AND
E AND *F* SCALE VARIABLES

	Initial Factor <i>A</i>	Initial Factor <i>B</i>	Initial Factor <i>C</i>
Total Initial <i>E</i> Scale Scores	.67 ^a	.60 ^b	.05
A-S	.55 ^b	.47	-.42
A-N	.83 ^a	.75 ^a	-.58 ^b
M	.42	.55 ^b	-.21
Total Initial <i>F</i> Scale Scores	.67 ^a	.59 ^b	-.43
Conventionalism	.61 ^b	.71 ^a	-.43
Authoritarian Submission	.66 ^a	.66 ^a	-.43
Authoritarian Aggression	.65 ^a	.74 ^a	-.41
Anti-Intracception	.29	.19	.03
Superstition and Stereotypy	.49	.36	-.29
Power and Toughness	.48	.37	-.55 ^b
Destructiveness and Cynicism	-.08	-.29	-.16
Projectivity	.30	-.09	-.10
Sex	.68 ^a	.49	-.36

^aSignificant at the $P_{.01}$ or $P_{.02}$ level of confidence.

^bSignificant at the $P_{.04}$ or $P_{.05}$ level of confidence.

From Harold Hotelling and Margaret Pabst, "Rank Correlations and Tests of Significance Involving No Assumption of Normality," *Annals of Mathematical Statistics*, VII, 29-43.

TABLE 3
CORRELATIONS BETWEEN PRE-PSYCHOTHERAPY SELF AND IDEAL SELF CONCEPTS

Subject	1	2	3	4	5	6	7	8	9	10	11	12
Correlation	.53	.57	.68	.51	.43	.56	.16	.22	.06	.52	-.13	-.61

self and ideal self concept distributions, found in Table 3, were rank order correlated with total *E* scale scores, a correlation of .66, significant at the $P_{.04}$ level of confidence was obtained.

A classification in terms of the self concept construct of subjects varying along the continuum of ethnocentrism was made. Two distinct clusters of subjects were found with respect to similarity of pre-psychotherapy self concept factor loadings. These clearly differentiated between high and low ethnocentric subjects. Thus, the six subjects comprising the first group or self concept Type I obtained full *E* scale scores ranging from 80 through

118, while the four self concept Type II subjects scored from 23 through 64. Type I subjects also had *F* scale scores of 109 through 157, while Type II subjects' scores were from 79 through 113. The remaining two subjects tended to fall between these extreme groups. From this, it seems that Type I subjects possessed the highest *E* and *F* scale scores and were neurotic subjects with high self-esteem and feelings of adequacy. These individuals denied having anxiety concerning their interpersonal relationships and tended to disclaim knowledge of inner weakness and contradictory self trends. They tended to see themselves as possessing many of those qualities which they would like ideally to have. Type II subjects on the other hand saw themselves as unworthy and inadequate with respect to many aspects of interpersonal relationships. They admitted to anxieties and were concerned over their impulses and hostilities and the extent of their control over these. A tendency to judge themselves as having few or even negative aspects of those characteristics and qualities which they would like ideally in themselves was present.

It appears from these data that a significant relationship does obtain for these subjects between their self concepts and their ethnocentric attitudes. Hypothesis 1 is thus sustained.

Hypothesis 2 was tested by a factor analysis with the centroid method of the subjects' post-therapy self concepts and by comparing changes between initial and final self concept factors with changes occurring in ethnocentrism. Only 11 subjects were available for the testing of post-psychotherapy self concepts. *E* and *F* score changes which occurred are shown in Table 4. Post-therapy self concept Factors *A* and *B* were found to be substantially the same as pre-therapy Factors *A* and *B*, while Factor *C* again was un-

TABLE 4
E AND *F* SCALE SCORE CHANGES

Subject	Initial <i>E</i> Score	Final <i>E</i> Score	Change	Initial <i>F</i> Score	Final <i>F</i> Score	Change
1	90	90	0	136	135	1
2	118	105	13	153	131	22
1	81	84	-3	147	153	-6
4	80			109		
5	91	94	-3	157	151	6
6	83	78	5	128	147	-19
7	89	99	-10	123	107	16
8	75	69	6	139	127	12
9	50	53	-3	113	110	3
10	64	51	13	79	90	-11
11	49	58	-9	106	113	-7
12	23	33	-10	100	96	4

definable. Changes in factor loadings between pre- and post-psychotherapy factor matrices were calculated, ranked, and rank order correlated with changes of ethnocentrism as indicated by *E* scale score changes. Though a nonsignificant rank order correlation coefficient of .12 was obtained when Factor *A* was considered, a correlation of .66, significant at the $P_{.02}$ level of confidence, was found for self concept Factor *B* changes and *E* scale shifts. *F* scale and self concept Factors *A* and *B* changes produced nonsignificant correlation coefficients of $-.39$ and $.08$.

The procedure of using two different factor matrices for calculating changes in particular factors may be objected to on the ground that the factors, while very similar, may yet be sufficiently different to jeopardize the drawing of conclusions. To check on this possibility, a further factor analysis was carried out. Six subjects were selected for this analysis, and their pre- and post-psychotherapy self concept distributions were intercorrelated as though these were of 12 individuals instead of six subjects at two points of time. Factors *A* and *C* were substantially similar to Factors *A* and *B* of the two preceding factor analyses. Factor *A* again represented "self-esteem and self-reliance" and Factor *C* "lack of awareness and of anxiety concerning impulse and hostility control." Factor *B* was best described as representing a "drive for achievement accompanied by adaptive anxiety," while Factor *D* was essentially a specific factor for Subject 12. This analysis permitted a direct study within one frame of reference of self concept factor changes. Correlational procedure as before disclosed rank order correlations of .64 between *E* scale score and self concept Factor *A* and *C* changes. A correlation of .09 was found for Factor *B*. Nonsignificant correlations were calculated for self concept factor and *F* score changes.

The obtained correlation coefficient of .64 is significant at the $P_{.09}$ level of confidence. This is not sufficiently significant to meet a rigorous criterion but may be accepted as suggestive of a trend. To this extent, the previous finding of a significant relationship between *E* scale and self concept Factor *B* changes is supported. In addition, an examination of the direction of these changes disclosed that five of the six subjects had directional changes corresponding to the relationship found above. That is, as awareness and anxiety concerning impulse and hostility control increased, ethnocentrism was reduced; as the denial of anxiety and the disavowal of problems of impulse and hostility control increased, ethnocentrism increased.

An item analysis of the significant statement changes was carried out. Three judges rendered evaluations as to the extent and direction of self concept factor changes represented by these. A five-point scale of change

was employed. The average correlation of judges' ratings for each of the 11 subjects was .75. While these ratings were not conclusive, they too indicated a trend. Of a total of 33 ratings, 17 supported the relationship previously found for Factor *B* and *E* scale changes; nine were inconclusive; and seven displayed a contradictory relationship. This contradictory trend occurred primarily for the two subjects who demonstrated the smallest *E* scale score changes. Due to the small number of subjects, a coefficient of contingency of .51, calculated for judges' ratings of self concept Factor *B* and *E* scale changes, was not significant. With a larger subject population, the continuation of the trend herein noted might easily have resulted in the obtaining of a significant statistic.

To sum up, it would appear that while Hypothesis 2, stating that alterations of the self concept would be accompanied by changes of ethnocentric attitudes, was not conclusively supported, a decided trend in that direction was found.

D. DISCUSSION

1. *Self Concept Typology*

Two self concept types related to the degree of ethnocentrism shown were found to characterize the majority of subjects. All of the subjects were hospitalized neurotic patients incapacitated in varying degrees, and their self concepts must be evaluated accordingly. It seems reasonable to assume that the idealized picture characteristic of Type 1 subjects demonstrates a lack of self insight and essentially is defensive in nature. The importance of this defense has been stressed by Horney (7) who views it as permitting the person to move away from himself so as to obliterate and transform unacceptable conflictual aspects of the self. Furthermore, Horney regards the difficulties encountered in the maintenance of this fictional self picture as leading to the externalization of internal processes and qualities. These external factors are then held responsible for one's difficulties. This process in essence, corresponds to the mechanism of projection which is one basis for ethnocentrism.

From this viewpoint, Type I subjects' self concepts are façades which must be maintained and enhanced, and it is in this that ethnocentrism must be viewed as playing a rôle. Of course, the demonstration of a significant relationship between ethnocentrism and a self concept type does not necessarily establish the proof of a functional relationship between them. These may be significantly correlated by virtue of a third variable, the social milieu, and the subjects' social environments. Since the individual's self

concept is in a sense a part product of his social environment, it may thus be related to ethnocentrism which may be one of the aspects characterizing his social group. Thus, the individual formulates a self concept as a partial consequence of the introjection of value judgments about himself emanating from significant adults and peers in his formative years. A similar transmission of ethnocentric value judgments may also occur, and a relationship between these may result solely on this basis. This, however, does not readily explain the varying intensity of ethnocentric attitudes which individuals belonging to the same or similar social groups manifest. What has been shown to be a trend concerning the relationship between changes of ethnocentrism and increased self awareness also militates against this supposition by supporting the probable existence of a functional relationship. The similarity of the types depicted here to personality descriptions of ethnocentric and nonethnocentric individuals by Adorno, Frenkel-Brunswik, Levinson and Sanford (2), by Allport and Kramer (3), and by Hartley (5) is sufficient to be convincing that a personality typology based upon the self concept construct has validity to the extent that generalizations can be made from the experimental population.

2. *Self Concept Factors and F Scale Personality Trends*

Table 3 discloses that significant correlations were obtained between Factors *A* and *B*, and such personality dispositions as conventionalism, authoritarian submission, and authoritarian aggression. These personality characteristics are taken to represent a rigid adherence to conventional values as a consequence of externalized social pressures rather than being due to adequately introjected and integrated values; a submissive attitude toward external agencies and authority figures; and hostile, punitive attitudes under the cloak of moral indignation and self justification toward those seen as deviating from the conventional norms. For the subjects of this study, these qualities are related to an unrealistically high self evaluation accompanied by a denial of anxiety concerning interpersonal relations and a disavowal of inner conflicts. The functional relationship of these attributes may be explained by reference to Sullivan's concept of security operations (15). The self concept, being an evaluational structure of self perceptions, takes a form largely consistent with the view and valuation which primary group figures formulated of the individual during his childhood. Security in childhood is a direct outgrowth of a sensing by the child of a positive evaluational and accepting attitude by these primary group figures. The child's behavior is therefore generally focused toward the gaining of approval through con-

formity to parental expectations and wishes and to the values which they stress. Conformity thus becomes an allayer of anxiety and a means of establishing a positive self image though the individual's self expression may be reduced and important needs unfulfilled. Hostility engendered in the child against parental figures in their rôle as frustrating agents, threatens his security and is usually dealt with through repression and an increased submissiveness to the parental, authoritative figures. The continuation of this pattern into adulthood without the development of new techniques for coping with threat results in the uncritical submission of such individuals to other individuals or supra-individual authorities conceived of as greater and more powerful than they. As during childhood, submission as a means of gaining safety and approval tends to lead to the maintenance of a conscious positive, guilt-free concept of self and to the suppression and repression of autonomous strivings and needs. These dangerous impulses, qualities, and hostilities in turn become projected outward on to outgroups who are then condemned for stressing other values, being nonconformists and thus inferior or desiring sinister ends. When such a positive self concept becomes altered so that the individual becomes aware of his inner strivings and conflicts, anxiety is engendered and the outward projection of these heretofore self alien qualities tends to become reduced.

3. *Ethnocentrism and Conscious Anxiety*

The relationship revealed between changes in ethnocentrism and increased self awareness and anxiety may be taken as revealing a functional relationship. Ethnocentrism has been previously shown to be a characteristic of those subjects disclaiming anxiety while nonethnocentric subjects admitted to severe anxiety and depressive, self-critical trends. In this context, ethnocentrism can be viewed as a defensive effort to bind and repress anxiety together with the awareness of the factors arousing it. It is of interest that psychosomatic symptomatology represented the major complaint or held a prominent position among other symptoms for ethnocentric subjects while anxiety was the major symptom of the nonethnocentric subjects. Levinson (2) has reported a similar finding. Dynamically, psychosomatic symptomatology represents a binding of anxiety. Ruesch's explanation (11) of such symptoms, as being due to a lack of expressive facilities primarily attributable to conformance and excessive repressive tendencies due to cultural influences, points up their dynamic similarity to ethnocentrism when the latter is viewed as a defense mechanism. The existence of anxiety in the nonethnocentric subjects suggests, on the other hand, that the locus of their

conflicts is within them, that the total personality is yet striving to deal with these on a basis other than repression and projection, that a positive solution to the conflict is yet possible. Affect, including anxiety, has often been characterized as a negative, disorganizing influence on functioning. Yet as Yaskin (16) and Mowrer (8) point out, anxiety may be taken as a hopeful signal that the individual is still struggling and that a solution is still sought after. The relationship of changes in anxiety and ethnocentrism can be understood from this view of anxiety. If, as a consequence of psychotherapeutic experience, the individual becomes increasingly aware of and freer to deal with his conflicts and repressions, one would expect an increase in anxiety along with a decrease of previously employed defensive mechanisms by means of which an over-idealized self concept was maintained and anxiety bound.

E. SUMMARY

1. The study investigated the relationship between the personality construct of the self concept and ethnocentrism, together with those personality dispositions conceived of as underlying it. Alterations in the self concept brought about through psychotherapy were studied with respect to concomitant changes in ethnocentrism.

2. *Q* technique procedure and the California Public Opinion *E* and *F* scales were employed to study the self concepts and ethnocentric ideology of 12 hospitalized neurotic subjects before and after psychotherapeutic treatment.

3. A factor analysis of pre-psychotherapy self concepts disclosed two factors identified as referring to (a) "self-esteem and self-reliance," and (b) "lack of awareness and of anxiety concerning impulse and hostility control" were found to be related, although not conclusively so, to changes of ethnocentric attitudes. This was taken to indicate that as self concept changes involving a greater self awareness accompanied by increased conscious anxiety occurred, ethnocentrism tended to be reduced.

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LEVEL OF ASPIRATION PHENOMENA IN SMALL GROUPS*

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A. THE PROBLEM

Little research has been done on level of aspiration for coöperative or group tasks, although the phenomena associated with level of aspiration have been rather extensively studied with respect to individually performed tasks. The only study found in the literature dealing with this problem is one by Rosenthal and Cofer (8) who studied the effect on group performance of an indifferent and neglectful attitude on the part of a trained "planted" group member. The task was dart throwing and measures of level of aspiration for oneself and for the group were included. No differences were found as a function of their experimental variable, but the authors do report (8, p. 577) that for both the experimental and the control groups, the level of aspiration for the group "... seemed to follow the same course and to be affected by success and failure in ways similar to the individual level of aspiration."

As a consequence of the lack of experimental data, psychologists, particularly in the area of social psychology, have had to assume that in a situation demanding coöperative action for the attainment of a goal shared with others, individuals will react to success and failure as they do under conditions of individual goal seeking and performance. This assumption has usually been based upon studies which have shown that individual level of aspiration and goal discrepancy score is a function of the standards of a reference group, either the Ss own group or another group (2, 3, 4). Lewin, (6) for example, in discussing time perspective and morale, makes note of the relationship between group standards and the ideals and action of an individual striving for individual goals. He states (p. 115): "Such a connection between individual and group morale is, of course, still closer in regard to the pursuit of group goals." Krech and Crutchfield (5) further extend this reasoning

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in their discussion of time perspective and group morale. They suggest that groups with high ideals may frequently become demoralized because their aspirations, being projected so far into the future, do not provide their members with a concrete realization of goal attainment, or progress, on the way toward their ideal far in the future. Because they have not established intermediary goals, realistically set, presumably, the group members experience a frustration or a failure and demoralization results. Thelen (10) follows a similar line of reasoning when, in discussing introducing changes in a group, he states (p. 590): "The level of aspiration be realistically set with an eye to expectancy of the group in its particular situation." And "the level of aspiration must be continually revamped in response to changing perception of the changing realities in the situation."

The above reasoning is based on the assumption that when group goals and coöperative action are substituted for individual goals and individual performance, the reactions of the individual will remain essentially the same as those found under conditions of individual performance for individual goals. It is the purpose of this paper to report some experimental findings supporting this assumption.

Theories of group development and group morale stress the need-fulfilling or goal achievement functions of groups, i.e., groups come into being and continue to exist because they satisfy certain needs of their members. Some of these needs may be called personal, e.g., belonging, dominance, prestige, recognition; others are of a more impersonal or problem-solving nature, e.g., planning a dance, reaching a decision on a remuneration policy for store managers, how large should the company's inventories be, etc. In any case it would appear that the members' attitude toward their group is determined by the degree to which the group serves as a means for the satisfaction of the needs of its members. The second objective of this paper is to demonstrate this relationship experimentally.

It should be said at the start that the experiments to be described were designed to test some hypotheses regarding the relationship between success and failure of a group to solve problems and certain attitudes of the group members toward the group and the group's decisions. Because of the close relationship between success and failure and level of aspiration in individual goal-seeking, and because some of the dependent variables in the study had to do with the group members' reactions to the group's goal-seeking responses, i.e., the group's solution to the problem, it was decided to include measures of the individual member's level of aspiration for the group's solution. How-

ever, the primary objective of the experiments was not to study level of aspiration as such, and, consequently, the data do not provide as complete and adequate information as might be desired.

B. THE EXPERIMENTS

1. *Experiment 1*

a. Subjects. The subjects for the first experiment were volunteers, both male and female, from an intermediate course in psychology. They were assigned at random to 19 groups of four members each. In seven of the groups one volunteer did not appear at the appointed time, so that the number of Ss is 69 rather than the expected 76. A fifth member, a trained assistant, was placed in all the groups.

b. The problems. Each group was given five problems to solve as a group. They were told that this was an experiment in group problem-solving and that they were to avoid working on the problems by themselves. The problems were given in the order in which they are described.

(1). *The National Park problem.* This problem was adapted from one described by Woodworth (11, p. 768). The group was told to imagine they were a group of tourists who had just arrived at a national park. The diagram on the table before them represented a map of the roads in the area and their task was to devise a route, starting anywhere in the park such that they would travel over all the roads once and only once. For the failure groups a change in the direction of one of the roads made the solution of the problem impossible. The time allowed was eight minutes.

(2). *The School Bus problem.* This is a modification of the problem used by Shaw (9). The task was to design the routes for two school buses each having a capacity of 35 children such that the two buses together travel not more than 12 miles ($11\frac{1}{4}$ miles for the failure groups—an impossible criterion) and would pick up all the pupils at the various stops. The buses could start at any point but had to end up at the school. (On the diagram given to the group, numbers at the intersections represented the number of pupils to be picked-up and numbers between the intersections represented the distance between the intersections.)

(3). *The Missionaries and the Cannibals problem.* One form or another of this problem is almost a part of our folklore, but none of the Ss knew the solution although many said that they had heard of the problem. Six cardboard discs, $3\frac{1}{2}$ inches in diameter were placed in a row before the group. Three of them were marked, M1, M2, and M3, and the group was

told they represented three missionaries. Two other discs were marked C1 and C2; these, the group was told, represented two cannibals. The remaining disc was marked RC and represented a cannibal who knew how to row a boat. The missionaries have a rowboat and the task is to get the cannibals and the missionaries across a simulated broad crocodile-infested river without violating the following restrictions: (a) the boat will only hold two people, (b) only the missionaries and the one cannibal can row the boat, and (c) the missionaries cannot be outnumbered by the cannibals at any time although the cannibals may be left alone. The time allowed was eight minutes. Any solution not violating the restrictions was accepted for the success groups. The failure groups were told that they had to solve the problem using only eleven one-way trips across the river—an impossible criterion.

(4). *The Mine problem.* This is essentially a maze problem and was phrased in terms of designing a route for a mine inspector. The task is to design the route with a minimum of retracings. For the success groups the actual minimum was used as the criterion for success. For the failure groups a minimum of one retracing less than the actual minimum was used. The time allowed was 10 minutes.

(5). *The London Tours problem.* This is essentially a maze problem with a large number of solutions. The diagram given the group contained a number of circles representing towns with one circle representing London. The circles were interconnected with lines representing roads. The task was to find how many different ways a motorist starting from London could make a tour of all the towns, visiting each town once and only once, and always ending up at London. The exact reverse of any route was not counted as different. The time allowed was 10 minutes and no criterion of success was given.

c. *Procedure.* The Ss seated themselves on three sides of a large table. They were provided with a number of different colored pencils for use with the maze problems. The problems drawn on sheets of paper approximately 20 by 30 inches in size were placed in the center of the table. One or more of the Ss had a watch so that the group itself watched the time. No leader was appointed either by E or by the group itself. E was present during the problem-solving and when necessary pointed out errors, but only when the group thought they had solved the problem.

Success on a problem was manipulated, when necessary, by the trained assistant. When it appeared that the group was not going to solve the

problem in the time allotted, he would skillfully and indirectly guide the group toward the solution. Data from interviews after the experiment and reports of the assistant who walked out with the other participants at the end of the session indicate that the participants did not suspect his rôle. It was further observed that frequently another group member was given credit for starting the group on the right track when actually it was the assistant who did so. Failure was assured by presenting the group with an unattainable, but reasonable, goal (Problems 2, 3 and 4) or by a slight alteration of the problem which made it unsolvable (Problem 1). Success or failure of the groups was manipulated so that six of the groups (21 Ss) failed on the first four problems. (Hereafter called the failure groups). Seven (27 Ss) succeeded on the first four problems. (Hereafter called the success groups). Three groups (10 Ss) failed the first problem, succeeded on the second, failed the third, and succeeded on the fourth; and three groups (11 Ss) succeeded on the first problem, failed the second, succeeded on the third, and failed on the fourth. After the third problem and again after the fourth problem each S was asked to make a rating of how well he thought the group would do on the next problem. The rating was made on an 11-point scale prefaced by the following question: "With respect to the solution of the next problem, which will be of the same nature as the preceding ones, how good do you think the group's solution will be? (Disregard how the group went about arriving at its solution)." These ratings were used as a measure of level of aspiration for the group's performance.

To maintain motivation two procedures were initiated. To avoid suspicion that the experimenter was manipulating success and failure, the groups were given the criterion for a successful solution before they started to work on each problem. When the group was to succeed, they were told that the criterion for success was based on the performance of graduate students. When the group was to fail, they were told that the criterion for success was based on the performance of college freshmen. In addition a system of awarding and revoking prizes to the group was introduced. The system is somewhat complex because it was necessary that the conditions at the start of the fifth problem be the same for all groups except for their past history of success or failure in solving the problems. The success groups were told that if the group solved the first problem, they, as a group, would be given one ticket to a campus play; if they failed they would not win a ticket. With each succeeding problem they would stand to lose whatever tickets they had won up until then—or to win one more ticket. They were further told that

there were five tickets available so that if the group solved all of the problems each of them would win a ticket. The procedure for the failure groups was somewhat different. They were given tentative possession of five tickets at the start of the experiment and told they would be allowed to keep one ticket for each problem they solved correctly, but that failure on a problem would result in a loss of the ticket for that particular problem plus any tickets they had previously retained by virtue of solving the previous problem. The procedure for the mixed success and failure groups were the same as for the failure groups. At the start of the fifth problem the failure and mixed success and failure groups were told that since the tickets were already purchased *E* would change the procedure and if the group successfully solved the last problem they would win all five tickets. As a result, at the start of the fifth problem, all groups stood to win a prize for each group member if they successfully solved the fifth problem. They would not win any prize if they failed to solve the problem. In presenting the fifth problem to the group no criterion for success was given.

After the group had completed their solution to the fifth problem and before they were told whether they had succeeded or failed, a rather extensive questionnaire was administered. It consisted primarily of a number of rating scales prefaced by questions which have to do with the *S*'s reactions to the group, its members individually, their satisfaction with the group's solution and the quality of the solution. The ratings of interest in this report were prefaced by the following questions: (a) Attitude toward the group. "Most people would rather work with certain groups rather than with others, because of the kinds of help they were able to get from the group. Rate on the following scale the extent to which you would prefer working with *this* group rather than other groups. (b) Disregarding how the group went about arriving at the solution, rate the solution reached by the group *on the last problem* as to its quality. How good a solution was it?

All ratings were made on an 11 point scale. Since the *Ss* were to make ratings with respect to an ambiguous stimulus, the group's solution to the fifth problem, it was thought that extreme variability of responses might be minimized if all the groups were told after the time limit was up on the fifth problem that the highest score made by any previous group was a score twice as high as their group had done.

2. Experiment 2

Except for the following changes the second experiment duplicated the first experiment.

a. Subjects and sample. Subjects were volunteers from introductory psychology classes. They were assigned at random to 16 groups of four members each. In five of the groups one volunteer failed to appear at the appointed time so that the number of Ss is 59 rather than the expected 64. Seven of the groups (25 Ss) succeeded on the first four problems and 9 groups (34 Ss) failed on the first four problems. No mixed success and failure groups were used in the second experiment.

b. Problems.* The first four problems were the same as those used in the first experiment. In order to avoid success and failure experiences attendant upon getting one or more solutions to the problem, the fifth problem was changed.² The new problem was that of estimating the number of dots on a $19\frac{1}{2}$ by $16\frac{1}{4}$ inch sheet of white cardboard placed 10 feet away from the group at table height. The group was asked to arrive at what they, as a group, considered to be the best estimate of the number of dots. They were given no time limit, but if no solution was offered at the end of eight minutes the group was told to take three minutes to arrive at a decision.

c. Rating of level of aspiration. Since the fifth problem was quite different from the preceding four, Ss were asked to make two ratings of their level of aspiration for the fifth problem. One rating was the same as that used in experiment one. The other was modified as follows: "With respect to the solution of the next problem, which will be of a highly different nature from the preceding ones, how good do you really expect the group's solution will be? Disregard how the group went about arriving at its solutions."

d. Administration of Rating Scales. The two levels of aspiration rating scales and two ratings having to do with the S's attitude toward his group were administered together before the fifth problem. After the time limit was up on the fifth problem and before the group was told whether it had succeeded or failed, a revision of the questionnaire used in experiment one was administered. Included in the questionnaire were ratings on level of aspiration for a hypothetical sixth problem (like the dots problem) and a rating of the quality of the group's decision on the fifth problem. After the questionnaire was completed and collected by the experimenter, the Ss were asked to make a rating of the degree of discrepancy between their final estimate of the number of dots and the estimate reached by the group. This rating will be referred to as residual disagreement. It will be considered as a measure of the extent to which the individual group member refused to accept the group's goal response and retained his own goal-seeking response.

²See discussion of the results of Experiment 1.

In essence it is a measure of the degree of rejection of the group as a means of reaching the member's goal (the solution to the problem).

e. After reaching a decision on the fifth problem the group was not given any frame of reference for evaluating their decision.

f. After the rating on residual disagreement was completed all groups were told that they had failed on the problem—that 75 per cent of the groups were closer to the true number of dots than they were. Following this they were again asked to make a series of ratings including a repetition of the level of aspiration rating for a hypothetical sixth problem.

B. RESULTS AND DISCUSSION

From Table 1 it will be seen that there is a marked difference in level of aspiration between the success and failure groups following three and four successes (or failures). Further the mixed success and failure groups (*SFSF* and *FSFS*) fall in between the 100 per cent success or failure groups with the level of aspiration dropping from the third to the fourth problem after a failure in the case of the *SFSF* groups and rising slightly for the *FSFS* groups following a success. This is exactly what one would predict from what is known about level of aspiration on individual tasks. The data with respect to the level of aspiration for a future problem require further explanation since the mean level of aspiration rises in all cases except the success groups. It will be recalled that none of the groups was told whether they had succeeded or failed on the fifth problem. They were, however, told that the highest score attained on the fifth problem by any other group was twice as large as their score. This plus certain other considerations discussed below apparently resulted in a failure experience for the success groups and a success experience for the failure groups. Supporting evidence for such an interpretation comes from several sources:

1. When asked to rate the difficulty of Problem 5, the success groups rated it as being significantly more difficult than did the failure groups. (Mean rating for the success groups was 5.8; for the failure groups, 4.4, the difference between the means is significant at the 1 per cent level of confidence).

2. If the assumption is made that a rating of the quality of the groups solution is a measure of performance, albeit a subjective measure, then the difference between it and the level of aspiration for the fifth problem can be regarded as an attainment discrepancy score as it is conventionally used in level of aspiration studies. When attainment discrepancy scores were

computed for all Ss, members of the success group had a mean attainment discrepancy score of -1.4 while the failure groups had a mean of $+3.1$.

TABLE 2
ATTAINMENT DISCREPANCY SCORES AND CHANGE IN LEVEL OF ASPIRATION FOR
INDIVIDUAL SUBJECTS, EXPERIMENT 1

	Attainment discrepancy score**		Change in LA for future problem***	
	Mean	Sigma	Mean	Sigma
Success	-1.5^*	2.57	0.0	1.62
Failure	$+3.1^*$	3.30	$+1.9^*$	2.66
SFSF	$+1.0$	2.00	$+0.9$	1.51
FSFS	-0.7	2.26	$+0.4$	1.56

* Significantly different from zero at the 1 per cent confidence level.

** F is significant at the 1 per cent confidence level.

*** F is significant at the 5 per cent confidence level.

Both means are significantly different from zero and, of course, are significantly different from each other. A positive discrepancy score indicates that subjective evaluation of performance exceeded level of aspiration while a negative score indicates that subjective evaluation of performance fell below the level of aspiration. From these findings the interpretation can be made that the success groups experienced a failure on the fifth problem, while the failure groups experienced a success on the fifth problem.

3. Independent evidence obtained from interviews with four success group members and four failure group members supports this interpretation. When asked, "Why did you rate the quality of your group's solution to the last problem as you did?", the success group members reported a failure experience which they attributed to the fact that their performance was only half as good as the best score made by any group. To the same question the failure group members reported a success experience. To paraphrase their reports, "We just didn't get anywhere on the other problems, and when we got four (or some other number) different routes, it looked pretty good."

It would seem, then, that the fifth problem was psychologically a failure for the success groups and a success for the failure groups. With this interpretation the data are in accord with what is known about level of aspiration for individually performed tasks. The level of aspiration rose significantly for the failure groups after a success experience and didn't change (in this case) for the success groups after a failure.

As can be seen in Table 3, a significant difference in level of aspiration for the fifth problem was again obtained in the second experiment as a

TABLE 3
MEANS AND SIGMAS FOR RATINGS OF INDIVIDUAL SUBJECTS, EXPERIMENT 2

	LA for a slightly different problem*		LA for a similar problem*		Attitude toward group*		Quality of group's decision	
	Mean	Sigma	Mean	Sigma	Mean	Sigma	Mean	Sigma
Success	7.8	1.18	8.4	1.37	7.2	2.17	6.2	1.78
Failure	4.0	1.80	4.7	1.75	5.3	1.65	6.1	1.83

	LA for a similar future problem		Residual disagreement**		LA for a similar future problem after failure	
	Mean	Sigma	Mean	Sigma	Mean	Sigma
Success	6.2	1.82	2.4	1.65	5.2	1.91
Failure	6.3	1.40	3.9	2.44	4.9	1.91

* Difference is significant at 1 per cent level of confidence.

** Difference is significant at 5 per cent level of confidence.

function of success and failure on the preceding four problems. The relationship holds for both level of aspiration measures. The second experiment was designed to eliminate the difference between the success and failure groups in attainment discrepancy scores by substituting a single solution problem for the previous multiple solution problem and omitting any frame of reference for objectively evaluating the solution to the problem. It can be seen in Table 4 that the attempt failed.

TABLE 4
ATTAINMENT DISCREPANCY SCORES AND CHANGE IN LA FOR INDIVIDUAL SUBJECTS, EXPERIMENT 2

	Attainment discrepancy score Similar problem*		Attainment discrepancy score Different problem*		Change in LA for future problem*	
	Mean	Sigma	Mean	Sigma	Mean	Sigma
Success	-1.6	1.88	-2.2	2.10	-1.6	2.19
Failure	+2.1	2.81	+1.5	2.60	+2.3	2.71

* All scores are significantly different from zero at the 1 per cent confidence level.

Although the data in Experiment 1 indicate the reasons for and the meaning of the negative attainment discrepancy scores in the success groups and the positive scores in the failure groups, the reason for their occurrence and their meaning is not clear for the second experiment. Unlike the first experiment there was no known objective or subjective frame of reference available to the Ss that would result in a reversal of success or failure in the two sets of groups. The most immediate and possibly the most plausible

explanation for the findings seems to lie in the difference between the fifth problem and the preceding ones. The first four problems require a certain amount of reasoning as well as trial and error behavior. The fifth problem was one of judgment with little check upon the accuracy of the decisions. It might be that when faced with a different kind of problem the members of the success groups, although still strongly attracted to their group, hedged in their ratings of the quality of the group's solution, and reduced their ratings toward the midpoint of the scale. This, in combination with previous high level of aspiration ratings, would produce negative attainment discrepancy scores. Similarly, the positive attainment discrepancy scores in the failure groups could be a result of a similar tendency on the part of the *Ss* to make their ratings of the quality of the group's solution nearer the center of the scale. Such an interpretation questions the meaningfulness of a level of aspiration rating made without previous experience on the task. Essentially this is a question of the transfer of level of aspiration from one task to another. It certainly can not be concluded from these findings that transfer does not occur. It would be surprising to find that transfer could be demonstrated with a sample of this size after merely four trials on one type of problem as in the present case.

In Table 3 the relationship between attainment discrepancy score and change in level of aspiration described by Lewin, Dembo, Festinger and Sears (7) for individual tasks can be seen for the case of group tasks. When performance exceeds level of aspiration, the level of aspiration for the next problem goes up; when performance falls short of aspiration, the level of aspiration for the next problem tends to go down or to remain stationary.

Also of interest is the relationship between residual disagreement and success or failure of the group to solve its problems. Under conditions of failure on four successive problems there is a tendency for the members of the failure groups to report a greater difference between their own solution and the group solution (Residual Disagreement)—to prefer their own goal response to the goal response of their group. As can be seen in Table 2 there is also present a significant difference between the success and failure groups in their attitude toward their group. The members of groups with a past history of failure as contrasted with the members of groups with a past history of success prefer their own solution to the group's solution and also have a lower positive attitude toward their group. The two vary together as one would predict from a theory of group dynamics that stresses the need fulfilling function of a group. Generalizing from the operations of the

present study to the Rosenthal and Cofer experiment, it would appear that this is an experimental corroboration of Rosenthal and Cofer's suggestion that neglectful and indifferent behavior on the part of a group member results in a tendency for the group members to give up group goals and to substitute for them personal goals. It is also in line with Bovard's (1) finding that members of group-centered groups altered their judgments of a stimulus in the direction of the group average more than did the members of leader-centered groups, if it is assumed, as Bovard suggests, that there is a greater positive attitude toward the group in the group-centered groups. Preference for own solution rather than the group's solution should also be reflected in the member's rating of the quality of the group's solution. Such a relationship is not found when the group means are compared. Although differing significantly in residual disagreement, the ratings of the quality of the group's solution for the success and failure groups are essentially the same. The similar ratings of the quality of the group's solution can be regarded as a consequence of the lack of transfer to the fifth problem. It would appear, then, that the ratings of residual disagreement are primarily a function of the past history of success or failure rather than of the performance on a single problem. After the fifth problem the reference scale used in making the ratings of quality moved up for the failure groups and down for the success groups and the result was no difference between the groups.

Rosenthal and Cofer (8) had their *Ss* make a rating of the probability that their group would achieve a standard set for them by the experimenter. This rating is interpreted by them as a measure of belief in goal attainability. They found that the effect of negligent and indifferent behavior on the part of one member of the group was to reduce the mean rating of belief in goal attainability significantly below that of a control group. For purposes of comparison it may be assumed that their measure is roughly comparable to the ratings of attitude toward the group used in the present study, in the sense that both measure the *S's* attitude toward his group as a means to the attainment of a goal. If such an assumption is accepted, then the findings of the present study modify the interpretation of their results. They found a difference in attitude toward the group as a means to a goal, but no difference in level of aspiration—when performance was approximately constant between the experimental and control groups for each trial. In the first experiment of the present study differences were found both in attitude toward the group and in level of aspiration for the next problem when performance on the preceding problem was constant as measured by a rating

of the quality of the solution. The difference between the Rosenthal and Cofer study and the present one lies in the fact that in the present study past history of success and failure in solving similar problems was varied in four sets of groups whereas in the Rosenthal and Cofer study past history of success and failure was held constant for both the experimental and control groups. As mentioned earlier the data from the second experiment cannot be easily interpreted because of the confounding effect of a change in the nature of the fifth problem, although the difference obtained is in the predicted direction. Attitude toward the group *as a consequence of past performance of the group over a series of problems* is related to level of aspiration.

Although for purposes of studying level of aspiration in a group setting, it would have been desirable to have had more objective measures of level of aspiration, nevertheless the above findings attest to the reliability of the measures. Since the validity of ratings is always subject to the possible influence of a "halo effect," it might be said that the level of aspiration ratings simply represent the *S*'s attitude toward their group. To some extent this is true. The mean rating of the success groups on several ratings with respect to their attitude toward their group are significantly higher than the mean ratings of the failure groups. This, however, is just what one would expect, and, in one sense any level of aspiration represents an attitude on the part of the *S* toward himself as a means of attaining a goal. If the group has failed consistently, it would not be rated highly and no one would aspire to a high performance for it. The level of aspiration ratings, however, reflect more than the *S*'s attitude toward his group. They are also sensitive to single changes in the performance of the group whereas the ratings of attitude toward the group are not. On the basis of ratings of the difficulty of the problem, attainment discrepancy scores and the interviews it was concluded that in the first experiment the success groups experienced a failure and the failure groups a success on the fifth problem. Correspondingly, and in accordance with level of aspiration theory, the level of aspiration changed. The ratings of attitude toward the group however did not change significantly. Similarly, in the second experiment when all the groups were told they had failed on the fifth problem, the ratings of level of aspiration dropped significantly for both experimental groups, but the ratings of attitude toward the group did not change significantly. One can conclude, then, that an overall "halo effect" resulting from a past history of success or failure was not operating to produce the level of aspiration ratings.

D. SUMMARY

In the absence of experimental findings on level of aspiration in a group situation psychologists have assumed that the level of aspiration phenomena associated with individual performance for individual goals are also to be found in the group situation where group goals are collectively pursued. The experiments described provide support for this assumption. In addition data were obtained with respect to the relationship between the success or failure of a group in solving problems and the attitude of the group members toward the group. Two experiments are reported in which small groups of college students attempted to solve a series of five problems. Success or failure of the groups in solving the problems was manipulated by the experimenter. Ratings of level of aspiration, quality of the group's solution, attitude toward the group and residual disagreement between the individual's solution and the group's solution were obtained.

It was found that individual level of aspiration for a group goal varies with the past history of success or failure of the group in solving problems. Within a series of problems level of aspiration for the group's solution varies directly with the discrepancy between rated quality of the group's solution and the level of aspiration for that solution, i.e., level of aspiration varies with attainment discrepancy score. In contrast to members of groups with a past history of failure, members of groups with a past history of success have a more favorable attitude toward their group and exhibit a greater acceptance of their group's solution to a problem rather than their own solution. These findings are interpreted in terms of the need fulfilling functions of a group and are related to other studies which suggest a relationship between the member's attitude toward his group and (a) acceptance of group goals and (b) convergence of individual judgments toward the mean of the group member's judgments.

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SIZE-DISTANCE SETTINGS AS INDICATIVE OF PERSONAL ADJUSTMENT*

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A. INTRODUCTION

A previous paper (11) reported an experiment in which the perception of the size and distance of human faces was apparently related to the meaning which subjects attributed to these faces. In a darkened room, subjects altered the size of projected images of faces so as to make them appear opposite a target post a few feet away. Under these conditions, pleasant faces were made relatively large (brought "close" to subjects) while unpleasant faces were made relatively small ("pushed away"). Varying the oral instructions to subjects often resulted in shifts in size-distance settings. Thus, explaining that a smiling, friendly-looking man was really a cynical communist plotter might result in subjects' shifting this face further away, yet still perceiving it opposite the target. It was apparent that perception, doubtless in a complicated way, accommodated itself to the interpretation placed on the faces.

The present study uses the same apparatus as before, but instead of seeking to correlate perception with type of face, it seeks to learn whether certain subjects make consistently large or small settings.

Focusing attention on individual differences among perceivers would seem to be a fruitful way of getting at some of the "why's" in perception (cf. 9). It is important but not enough to know that pleasant faces are in general made larger than unpleasant ones; we also need to try to account for the variations in judgments among subjects. The further we go in this direction, the more we are apt to understand the conditions under which a given perception takes place.

Studies of Klein (8), Witkin (13), Angyal (1), and Hastings (6) have suggested the importance of approaching perception via the perceiver. Klein, Schlesinger, and Meister (8), in repeating a study by Bruner and Postman

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(3), noted that certain of their subjects "showed consistent tendencies either to overestimate or to underestimate and these seemed to be independent of particular stimulus-figures" (p. 112). Witkin, in his study of perception of the orientation of objects, including one's own body, in relation to an up-right in space, found important and widely generalized differences among his subjects. Angyal was able to differentiate between neurotic patterns by means of a perceptual test. Hastings, using an apparatus similar to the one in the present study, found that *secure* subjects tended to see objects as smaller or further away than did *insecure* subjects.

Directly related to the present experiment is a study by Smith (12) in which subjects were not given a perceptual task as such, but were instructed to make self-reference settings of faces. Seated before a viewing alleyway, at the end of which was a screen, subjects were told to put the (projected) face "anywhere you would like to have it in relation to yourself—leave it where it is, bring it closer, or push it further away." There was no target post to match. A positive relationship was noted between size (closeness) of faces and personal adjustment. Subjects' comments suggested that these "personal distance" settings reflected their past experiences and their purposes.

The logic of the present paper is this: If poorly adjusted subjects, compared to well adjusted ones, actually *prefer* faces far away from themselves, then this factor ought to continue to function in a predictable way when a perceptual task is set up. Accordingly, the hypothesis was formulated that poorly adjusted subjects, when asked to line up a face with a target post, would put it further away (make it smaller) than would well adjusted subjects. Both groups would presumably see the face opposite the post.

The theoretical approach of the research is functional, in the sense that Cantril (4) and associates, e.g., Hastings (6) and Smith (11), have used the term. That is to say, it is assumed that an individual perceives in terms of the meaning that stimuli have for him in relation not only to his momentary goals, but to his past experience and his expectancies. To quote Hastings: "Perception is an individual-environment transaction which represents a 'carrying through' of the perceiver's acquired values in respect to his future purposes and expectancies" (p. 31).

B. APPARATUS AND PROCEDURE

The size-distance apparatus has been described in detail elsewhere (11). To summarize briefly: It consists of a table approximately 12 feet long. A partition running the length of the table provides two parallel viewing

lanes. The right lane offers a monocular view of an image projected on a screen by means of a Clason Visual Acuity Meter. Changes in *size* of this image, which can be accomplished while retaining clear focus, are usually interpreted as changes in *distance* of the image from the observer. Thus, the faces used in the present experiment could be caused, apparently, to move back and forth in a straight line away from and toward the viewer. The left lane provides a binocular view of a row of uprights (posts) numbered one through five. *The observer is instructed to adjust the projected image so that it appears to be opposite the middle, or third, upright.* This third post constitutes the *target*, and is always the same distance away.

The experiment was performed in a darkened laboratory room. The left, or target lane, was adequately illuminated so that the usual cues to distance localization were present. However, in the right lane there were no cues to distance except the size, details, and to a slight extent the varying brightness of the projected picture. Subjects did not know how large the face was, nor whether one image in the series differed in size from the others. Thus, observers found themselves in an ambiguous situation where the influence on percepts of their assumptions, goals, and expectancies might be apparent.

The faces used were from the Frois-Wittmann series (5, 7). The details of their selection and preparation have been presented elsewhere (11). Briefly, two faces describable as friendly and pleasant and two describable as unfriendly and unpleasant were chosen. Slides made from reversed negatives of these were equated for height, width at widest point, brightness, and amount of detail exposed. The projected image of each face could vary in height from 5.5 cm. to 20.3 cm. The height of the image was taken as an index of its size in the present study.

Twenty-two male undergraduates served as subjects. Each *S* participated singly. *E*'s purpose was to gain from each observer a natural acceptance of the experimental situation, to get him to feel ego-involved with the projected images, and to make size-distance judgments based on genuine feelings and preferences. Accordingly, before settings were made *S* was interviewed conversationally about "the man out there." *E* orally described the face, emphasizing friendly or unfriendly features, and *S* expressed his likes or dislikes, estimated the man's intelligence, and stated whether he knew anybody like him. *S* also made some practice settings of the face in the absence of the target.

When the uprights in the left lane were illuminated, *E* said: "Now, you're to match the face with one of those posts. You're to place the face

so it looks opposite the *third* post. Line them up. But don't try to do it by angles or higher mathematics! Remember, this is not an exercise in physics. Just put the face where it seems opposite the third post. Follow your hunch. It's bound to be a little subjective." He was reminded to "keep your eye on the man."

Talks with Ss during and after the experiment left little doubt that they perceived changes in distance as well as, or more than, changes in size. Probably a majority of Ss did not realize that the projected face was not an authentic object being moved along a track in the alleyway.

After completing the settings of the faces, each S filled in the Bell Adjustment Inventory, Student Form (2), and the Knutson Personal Security Inventory (10).

C. RESULTS

Analysis proceeded as follows: (a) Ss were ranked according to the size of their settings of the faces, and then were split into two groups—the 11 who made the larger settings and the 11 who made the smaller settings. (b) Personality scores were then calculated and averaged for the members of these two groups. (c) Differences between the two sets of average personality scores were then obtained. It was possible in this way to decide whether the Ss who made larger size-distance settings were well or poorly adjusted compared to the Ss who made smaller size-distance settings. Pertinent findings are summarized in Table 1.

First, Ss were ranked by their settings of *all four faces combined*. The 11 men who brought the faces "closer" (made them larger) were apparently better adjusted as estimated by the Bell Inventory than the 11 men who sought to push the faces further away (made them smaller). The difference of 16.9 in the Bell total score is significant at the .05 level.

Differences between scores on the Bell subscales likewise favored better adjustment for the 11 men who made larger settings of faces. Average differences are: 5.8 on the Home subscale, 4.6 on Emotional adjustment, 4.1 on the Social items, and 2.5 on the Health section (Figures not shown in Table).

Ss were next ranked according to the size of their settings of *each of the four faces separately*. In all cases differences in Bell total scores point to better adjustment for the men who preferred the face closer to themselves. For pleasant face No. 1, the men who made the larger settings earned an average of 17.2 less points on the Bell than those who made smaller

TABLE 1
RELATIONSHIP BETWEEN SIZE-DISTANCE SETTINGS OF FACES AND PERSONALITY SCORES

Subjects* ranked by—	Bell total score	Knutson total score
All four faces combined:		
Ss who made large settings (M = 66.0 cm.)	26.9	27.7
Ss who made small settings (M = 41.7 cm.)	43.8	23.2
Differences	16.9**	4.5
Pleasant face No. 1:		
Ss who made large settings (M = 16.8 cm.)	26.8	27.6
Ss who made small settings (M = 10.2 cm.)	44.0	23.5
Differences	17.2**	4.1
Unpleasant face No. 1:		
Ss who made large settings (M = 17.1 cm.)	27.5	27.5
Ss who made small settings (M = 8.6 cm.)	44.4	23.6
Differences	16.9**	3.9
Pleasant face No. 2:		
Ss who made large settings (M = 17.5 cm.)	28.6	27.4
Ss who made small settings (M = 11.3 cm.)	42.2	23.6
Differences	13.6#	3.8
Unpleasant face No. 2:		
Ss who made large settings (M = 16.8 cm.)	36.0	26.6
Ss who made small settings (M = 9.8 cm.)	37.9	25.0
Differences	1.9	1.6

Note: Smaller scores on the Bell Inventory represent superior adjustment. Larger scores on the Knutson Inventory represent greater personal security.

* All N's = 11.

** Difference is significant at .05 level.

Difference is significant between .10 and .05 level.

settings. For unpleasant face No. 1 the comparable difference was 16.9. Both differences are significant at the .05 level.

For pleasant face No. 2, the difference between the two groups of Ss on the Bell total score is not quite reliable by usual standards; for unpleasant face No. 2 the difference is even smaller. However, the direction of the difference in both cases favors better adjustment for the men who made larger settings of the faces.

Scores on the Knutson inventory favor more personal security for Ss who made relatively large size-distance settings of faces. The differences are consistent, though not statistically reliable (see Table 1).

In summary: The data suggest a tendency for the men who set the projected faces "closer" to themselves to be better adjusted and possibly more secure than the ones who "pushed the faces away" from themselves. This

relationship is strongly indicated when average settings of all four faces are used as a basis for ranking *Ss*. The same trend is apparent when rankings are done by settings of each face separately.

D. DISCUSSION

The results point to a fairly complicated psychological situation. When *Ss* were asked to set the faces the same distance away as the target post, why should their perception and performance be related to personality characteristics?

It seems likely that basic to what happened was the past experience, the purposes, and the expectancies of the perceivers. Thus, a poorly adjusted man as estimated by the Bell Inventory has probably had uncomfortable experiences with people, rather expects he will have more of the same in the future, and has the un verbalized purpose of removing himself a little bit from social contacts. The well adjusted man, whose social encounters on the whole have been satisfactory, anticipates rewarding relations with people, and is willing to bring the faces somewhat nearer to himself. It should be noted that these results closely parallel the "free choice" self-reference settings already mentioned. The important difference is that in the present experiment it was necessary for *Ss* to adapt perceptually to the requirements of their preferences.

Further insight into what may have happened is furnished by Hastings's recent experiment (6). He used an experimental procedure somewhat similar to the present, except that he kept the stimulus objects (projected images) at a constant distance away and had subjects adjust a pointer to localize them. In other words, in the present experiment faces were moved while the target post remained constant; in Hastings' work, images remained constant while a pointer was moved to indicate their distance away from the observer. Consistently, Hastings found that *insecure* subjects indicated a variety of stimulus objects as being larger (possibly closer to themselves) than did *secure* subjects. This might mean, in the case of our experiment, that poorly adjusted *Ss* tended to see the faces as too close to themselves, and moved them away. Well adjusted *Ss*, on the other hand, may have seen the same faces as too far away, and moved them closer.

A certain number of *Ss*' comments were recorded. Unfortunately, these are not adequate to throw much light on reasons for individual differences in settings. They do, however, suggest (a) the degree of involvement with the faces and (b) the important rôle of preferences in making settings. Com-

ments in the first category include: "Reminds me of a Nazi," "of a storm-trooper!" "I could never like him;" "about ready to jump on you." Comments in the second category are: "I presume the frowning one would be further back than the smiling one;" "I would rather have it away from me;" "the less I see of him the better;" "I don't want to look at him too much;" "seems less terrifying at close distance;" "want to put interesting faces closer." One S, who vigorously pushed one of the faces away from himself, explained that a mark on the face seemed to be blood coming down—and added that it reminded him of his father, who had been killed. It was clear that he had an emotional need to put distance between himself and the disturbing stimulus.

In general, it seems clear that the percept in this ambiguous situation, and presumably in analogous ones in daily life, is a function to an appreciable degree of the perceiver-as-a-whole. With stimuli (faces) the same, differences in size-distance judgments could be related to variations in answers to a constellation of home, personal, social, and health items. This is a promising lead in understanding the "why's" of perception. It brings such general terms as "purpose" and "past experience" down to the level of special kinds of individuals. Further research should be able to spell out these relationships more precisely.

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SHORT ARTICLES AND NOTES

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RELATIONSHIP OF INTELLIGENCE AND THE NINE SCALES OF THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY*¹

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A. INTRODUCTION

A survey of the literature concerning the relationship of intelligence and personality traits reveals a dearth of material. One such study made by Brower is the only one of significance which has appeared recently. In his paper he states:

The Minnesota Multiphasic Personality Inventory and the Wechsler-Bellevue Adult Intelligence Scale were administered, according to the usual methods, to 48 undergraduate students at New York University. All subscores of the personality inventory were then correlated with the total *IQ* obtained from the Wechsler-Bellevue battery. The following were the only Pearsonian coefficients of correlation which were significant (*P* being less than .001):

- | | |
|---|--------|
| 1. <i>IQ</i> and hypochondriasis | = -.60 |
| 2. <i>IQ</i> and hysteria | = -.65 |
| 3. <i>IQ</i> and psychopathic deviation | = -.57 |

. . . The hypochondriacal-hysterical syndrome is significantly related to relatively lower *IQ*. Since the *IQ* range was from 100 to 131, it is rather the average or slightly superior persons who tend toward greater degrees of hypochondriasis or hysteria while the intellectually very superior have lesser incidence of these types of maladjustment (1).

B. PURPOSE

The purpose of the present investigation is to determine what, if any, relationship exists between intelligence as measured by the Otis Self-Administering Tests of Mental Ability (Higher form *B*) and each of the nine

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scales of the Minnesota Multiphasic Personality Inventory (group form). Inasmuch as Brower does not state what kind of a sample was used in his study there is a possibility that it was not a representative or random sample; the results obtained in this investigation vary with those of Brower and hence it would seem that these different results warrant publication.

C. PROCEDURE

The subjects to whom the tests were administered were 68 General Psychology students randomly selected from the total population of 379 General Psychology students at Florida State University for the spring quarter, 1950. The sample was selected according to Peatman's table of random numbers (2).

The test used in this investigation to determine intelligence was the Otis Self-Administering Tests of Mental Ability (Higher form *B*), consisting of 75 questions, designed for use with senior high school and college students and adults, with a time limit of 30 minutes. However, since it is thought to be too easy for older college students and superior adults, the test was given with the 20-minute time limit to correct for this weakness (3). The scores were prorated and converted to *IQ*'s to determine the range of ability which was from 85 to 131.

The Minnesota Multiphasic Personality Inventory (*MMPI*), which has nine scales for personality characteristics, was the instrument used to determine the personality scores in this study.

The validity of the *MMPI* scores was determined by investigation of the *T* scores of the Question (?), Lie (*L*), and Validity (*F*) scales. It was found that the scores may be considered valid as far as can be determined by these measures of validity.

D. RESULTS

Pearsonian coefficients of correlation (*r*) were computed for the Otis raw scores and the *T* scores of each of the nine scales of the *MMPI*, i.e., hypochondriasis, depression, hysteria, psychopathic deviate, interest (masculinity-femininity), paranoia, psychasthenia, schizophrenia, and hypomania.

The Pearsonian coefficients of correlation which were found between the Otis raw scores and the *T* scores of the nine components of the *MMPI* are shown in Table 1.

The only significant coefficient of correlation was between the Otis and the paranoia scale. The other correlations which resulted are small and are considered to be due to chance. For this reason, the null hypothesis, i.e.,

TABLE 1
COEFFICIENTS OF CORRELATION (r) BETWEEN OTIS AND *MMPI* SCORES*

Scores		
Otis and hypochondriasis		-.130
Otis and depression		.105
Otis and hysteria		-.028
Otis and psychopathic deviate		-.197
Otis and masculinity-femininity		.043
Otis and paranoia		.327
Otis and psychasthenia		-.003
Otis and schizophrenia		.147
Otis and hypomania		-.141

*Sixty-six degrees of freedom in each case.

that there is no relation between intelligence as measured by the Otis and any of the nine scales of the *MMPI*, except paranoia, for the group used in this study, cannot be rejected. However, since the correlation between the Otis and the paranoia scale was significant at better than the one per cent level of confidence, the null hypothesis must be rejected in this case. There is a slight tendency for paranoia scores to increase as intelligence increases.

E. DISCUSSION

Since the only one of the foregoing correlations which is significant is paranoia, the results of this investigation vary with those obtained by Brower. There are four possible explanations for this discrepancy

1. The group used by Brower may be significantly different from the subjects used in this study as far as hypochondriasis, hysteria, psychopathic deviate, and paranoia as measured by the *MMPI* are concerned.

2. The group used in the present writer's study was a random sample and the group of students Brower used may not have been a random sample.

3. The group employed in the present investigation ranged in *IQ* from 85 to 131. The group used in Brower's study ranged in *IQ* from 100 to 131. The difference in results may be due to the difference in range of intelligence of the two groups.

4. Intelligence as measured by the Wechsler-Bellevue and Otis may not be the same thing.

The first three of the foregoing are thought to be more plausible explanations than the fourth inasmuch as Goldfarb found significant correlations between the Otis (20-minute form) and the Wechsler-Bellevue, namely .73 for males and .53 for females (4).

F. SUMMARY

A brief summary of Brower's work on the relation of intelligence and *MMPI* scores was given. He found three significant correlations (negative) with *IQ*: hypochondriasis, hysteria, and psychopathic deviate.

In the present study 68 students randomly selected from the total population of General Psychology students at Florida State University for the spring quarter, 1950, were given the 20-minute form of the Otis Self-Administering Tests of Mental Ability (Higher form *B*) and the *MMPI*.

The results indicated that the only significant correlation between intelligence as measured by the Otis and any of the nine scales of the *MMPI* was a positive one for paranoia.

It is concluded that the small insignificant correlations which resulted for the other scales were due to chance and the hypothesis that there is no relationship between intelligence as measured by the Otis and any of the nine scales of the *MMPI*, except paranoia, cannot be rejected.

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THE EFFECT OF SORORITY PRESSURES ON THE RESULTS OF A SELF-INVENTORY*

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A. THE PROBLEM

This investigation was designed to measure the effect of a particular type of social pressure, a sorority situation, on the results of a paper-and-pencil personality measuring device. Since self-inventories are frequently administered in situations which involve social pressures, it is important—both practically and theoretically—to know the possible effects of such conditions upon the responses of the subjects.

A special hazard of self-rating devices, the limitation most commonly recognized by psychologists, is described as follows by Goodenough (2): "... since a large proportion of the items usually included in these questionnaires have to do with matters in which one type of response is generally recognized as the socially desirable one, the question of frankness in response inevitably arises." To the question of "honesty" in report, the problem of "insight" is added by Raymond Cattell in his discussion of self-rating devices for measuring personal-social adjustment (1). A third factor to be noted in the consideration of possible distortion in self-report is unconscious motivation, inasmuch as repression may affect both insight and honesty in report. Doubtless in some situations which demand self-rating an individual may deliberately falsify in attempt to protect the self or to attain some goal; on the other hand, the motives involved may through conflict and repression afford no awareness of distortion.

Interest in the specific problem presented in this report grew out of a campus situation, when sorority leaders requested the author to assist them in the selection and administration of an adjustment inventory to the freshmen pledged to their various social groups. Discussion of the possibility of false report in such a situation led to the decision to present a self-inventory to the freshmen under experimental conditions for the purpose of determining the effect of the sorority setting.

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B. THE PROCEDURE

1. *The Conditions of the Experiment*

To determine the influence of sorority pressures upon pledged students, two testing situations were planned for the same subjects: the first condition as impersonal as possible, with the setting of an objective investigation; the second condition a very personal one, directed by each subject's sorority president. The adjustment inventory was presented a second time to the subjects, with the change in situation the variable.¹

The selection of the experimental period with reference to the school calendar was considered important. The period was therefore set to come after the early months of adjustment of the freshmen to college life and during a time when there would be no special strain—as of examinations, reports, holiday trips, or special social seasons. The interval between the two testings was three weeks, the interval which had been used in a previous study designed to measure the effect of repetition of an interval.

To carry out the plan, student experimenters were selected for contact with the subjects. The first administration of an adjustment inventory was directed by an advanced major in psychology who had prestige for her success in research projects. The second administration was directed by the five sorority presidents on the campus—all members of advanced classes in psychology.

The conditions for the first administration of the selected questionnaire were designed to impress the subjects with the impersonal character of the testing situation. In order that the freshmen pledged to sororities might not surmise that they had been selected as subjects for an experiment, the senior who served as experimenter for the first presentation of the inventory announced to all freshmen present at a class assembly that they would be expected to be present at the meeting of the following week to "coöperate as subjects in a scientific investigation which does not use the names of those who participate." When the students came for the testing, they were given the following assurance of anonymity:

Do not fill any of the blanks on the first page of your booklet. We are not interested in personal data. You have been chosen as subjects for this inventory because your being freshmen lessens the likelihood that you have had the test before. You may be absolutely honest in answering each question. We are interested in plotting group, not

¹The repetition of a test in itself introduces a possible variable. A previous study, described briefly in the account of "The Materials," which follows, was used as a control study of this variable.

individual, characteristics. When you have finished, someone will be at the door to take your paper. We thank you very much for co-operating with us in this objective study.

As the freshmen handed their booklets to the monitors, each was identified and the sorority affiliates were selected for the second testing.

Three weeks later, in sorority "pledge meetings," the president of each of these social organizations expressed interest in the adjustment problems of the freshmen pledged to membership. She then called a meeting for the administration of "a test or questionnaire which will be helpful to you and to us in determining your present difficulties of a personal and social nature." When the adjustment inventory was presented this second time, no reference was made by the sorority presidents to the previous presentation. Each sorority president gave the following directions: "Please give all the personal data called for on the outside page of your booklet; then answer each question as honestly as you can. Your sorority leaders are interested in having as true and complete account as possible of the adjustment problems of each freshman pledged."

2. *The Subjects*

Fifty-three of the college freshmen pledged to social sororities were in the experimental group at the beginning, but three were finally eliminated because of some irregularity. These subjects all held, as pledged sorority members, a probationary status with regard to final acceptance and initiation. They were members of a student body carefully instructed in the application of a student-devised code of honor to all reports and activities. The probationary status of these subjects and their training in a student honor code are significant aspects of the experimental situation.

3. *The Materials*

The Adjustment Inventory (Student Form) by Hugh M. Bell was the questionnaire selected. This inventory was used for two reasons: (a) The types of adjustment, or maladjustment, the sorority leaders especially wished to consider (home, health, general social, general emotional) are measured by this inventory. (b) As previously indicated, a control was needed because of the possible introduction of a variable through the repetition of a questionnaire. During the previous year the author's class in statistical methods had repeated the administration of this inventory to 140 freshmen, using an interval of three weeks, for the purpose of determining the effect of a second presentation when the conditions of administration are held con-

stant. The emphasis in each of the testing periods for this group of 140 freshmen had been upon an objective and impersonal setting, with the students identified by code numbers. The results of this previous study had indicated high reliability of report, with no trend of shifting up or down in the "trouble scores" on any of the four scales included in the questionnaire.

C. THE RESULTS

The principal results of the study are summarized in Table 1, where the differences between the mean scores under the two conditions and the standard errors of these differences are presented. The scores given here are to be read as average "trouble scores"—that is, as the mean number of difficulties of adjustment reported by the subjects under the first condition (an impersonal situation) and under the second condition (a sorority situation).

The tabulated data for the 50 freshmen, as presented in Table 1, show that in each of the four areas of adjustment (home, health, social, emotional) and also in total adjustment (combined from the four parts) the mean for the sorority situation is significantly lower than for the impersonal condition. The drop in the subjects' reported difficulties was the greatest for emotional adjustment and next greatest for social adjustment, the areas in which insight is probably more largely involved than in report of health adjustment or even home adjustment. The questions concerning health adjustment are largely factual, and those concerning home adjustment are also objectively observable to a considerable extent. There may be significance in the finding that the parts of the questionnaire which are least factual show the most marked decline in report of problems. Only honesty is involved in the report of the biographical data called for by a fairly large number of the questions on home and health adjustment. Other questions depend for correct answers upon both honesty and insight.

Table 2 was derived from analysis of the individual scores for the 50 subjects. It was found that in 42 cases out of the 50 (84 per cent) the total score for the sorority situation was lower than that for the impersonal one. In only five cases (10 per cent) was the total score higher on the second testing. In each of three areas (health, social, emotional) approximately two-thirds of the subjects reported fewer difficulties when their sorority presidents administered the questionnaire. A smaller proportion of the freshmen, 50 per cent, dropped in "trouble scores" in the area of home adjustment. The smaller loss in this area is also indicated by the comparison of differences between means, as shown in Table 1.

Only the *direction* of the shifting of the responses of the 50 subjects is

TABLE 1

SUMMARY OF TRENDS: DATA FROM ADMINISTRATION OF THE "BELL ADJUSTMENT INVENTORY" UNDER TWO SOCIAL^a CONDITIONS, DIFFERENCES BETWEEN MEANS AND THE RELIABILITY OF THESE DIFFERENCES

Statistical measures	Condition	Measures of adjustment									
		Home adjustment		Health adjustment		Social adjustment		Emotional adjustment		Total adjustment	
		1	2	1	2	1	2	1	2	1	2
Number of subjects		50	50	50	50	50	50	50	50	50	50
Mean score		4.66	3.18	7.02	5.18	11.02	8.98	12.64	9.82	35.34	27.16
Standard deviation (σ)		4.36	3.34	4.08	3.93	7.17	7.26	6.34	6.90	16.05	15.98
Standard error of the mean (σM)		.62	.48	.58	.56	1.02	1.04	.91	.99	2.29	2.28
Difference between means ($M_1 - M_2$)			1.48		1.84		2.04		2.82		8.18
(Loss in "Trouble Score")											
Correlation between the two testings (r_{12})			.79		.83		.86		.78		.80
Standard error of the difference (σD)**			.38		.33		.35		.63		1.45
Critical ratio ($D/\sigma D$)			3.89		5.58		3.71		4.48		5.64

**In estimating the σD , the formula for the standard error of the difference between correlated means was used:

$$\sigma D = \sqrt{\sigma^2 M_1 + \sigma^2 M_2 - 2r_{12}\sigma_{M1}\sigma_{M2}}$$

TABLE 2
TRENDS IN DIRECTION OF CHANGES IN "TROUBLE SCORES": DATA FOR EACH OF THE FOUR
MEASURES OF ADJUSTMENT AND FOR THE TOTAL ADJUSTMENT SCORES

Percentage of subjects making:	Type of adjustment measured				Total scores
	Home	Health	Social	Emotional	
Same "Trouble score"	36	20	12	20	6
Higher "Trouble score"	14	14	24	14	10
Lower "Trouble score"	50	66	64	66	84

indicated in Table 2. Significant also is the question of the *amount* of change made by these individuals under the social pressure of the sorority testing. Inspection of the original data for the 50 subjects revealed that the few who made higher scores when tested in their sorority houses differed from their first rating by only a few points in score—from one to four points increase. On the other hand, there were marked individual differences in the amount of change made by the 42 freshmen who made more "favorable" scores when tested by their sorority presidents—a range in decline from one point to 41. Most of these 42 subjects with lower scores dropped only slightly in their report of difficulties. Only 10 of the 42 dropped as much as 15 points (on an inventory which presents 140 questions). There were four subjects with a decrease of more than 20 points in score—the most extreme of these with a drop from 70 to 29. Investigation of the social data on these four freshmen revealed for three of the four evidence of marked anxiety over their sorority status. For these extreme cases there was probably a degree of deliberate distortion of report.

D. SUMMARY AND CONCLUSIONS

A widely used adjustment inventory (Bell's) was administered to 50 college freshmen, all of probationary status in social sororities, under two conditions: the first, an impersonal setting, without social pressure; the second, a personal situation, under the direction of sorority presidents.

The results indicate definite effects of social pressure. Most of the subjects marked fewer difficulties when tested in the sorority situation than they had in the impersonal atmosphere of the first presentation of the questionnaire. In every area of adjustment measured by the inventory the mean score from the second testing was lower and the difference between means statistically significant.

Several trends noted from a summary of the data suggest that unconscious mechanisms may have been involved in the responses of many of the subjects

who reported fewer difficulties when the situation was controlled by the sororities. Most of the 42 freshmen who gave themselves better ratings under this condition dropped only slightly in the number of difficulties marked—a decrease too small to indicate that they were “out to beat the game.” Moreover, the factual questions in nearly every case brought the same response. Considerably more change was found in responses to questions which called for insight as well as honesty. The hazards of self-rating devices seem, therefore, to involve a complication of factors.

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CORRELATION OF A SELF-INVENTORY OF PERSONALITY TRAITS WITH LABORATORY MEASURES OF VIGOR AND MOTILITY*

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A. INTRODUCTION

Prominent students of personality organization have noted a marked difference between personal characteristics that are the product of complex formative influences—traits such as dominance, leadership, extrovertiveness—and the more basic qualities of temperament. Gordon Allport is a noted exponent of this distinction. Allport's (1) position with regard to temperament as one aspect of innate individual endowment is presented in the following paragraphs:

. . . . The question of temperament alone, intricately tied as it is to the chemical functions of the body, is as important as it is baffling. Take, as an example, that subtle constitutional quality commonly called energy, vitality, or "pep." . . . In common speech it is often equated with "personality." What the precise physical counterpart of vigorous and vital activity may be one does not know, though certain glands, especially the hypophysis, the adrenals, the gonads, and the thyroid are thought to have more to do with it than certain others.

Or take the case of normal speed of movement (likewise an aspect of temperament, or of one phase of temperament, *viz.*, *motility*). One investigator studied the normal rates of tapping of twins, of brothers and sisters, and of parents. The results show a striking correspondence in normal tapping speeds among related individuals, monozygotic twins being closest, dizygotic twins and siblings less, parents and offspring next, while unrelated individuals had only a chance correspondence with one another. Such a finding is, of course, precisely what would be expected if heredity played an appreciable part in this basic form of activity, one of the many tap-roots of personality.

B. CORRELATION PROBLEM OF THIS STUDY

In consideration of Allport's statement that vigor and motility are tap-roots of personality, it was thought possible that some degree of positive relationship might be found between certain laboratory measures of vitality (com-

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mon measures of strength, speed of tapping, and the like) and self-inventories of vigor and ascendancy as personality traits. *GAMIN*, the Guilford-Martin inventory of five personality factors, was considered especially appropriate as the paper-and-pencil inventory to be studied in relationship to the laboratory measures. *GAMIN* was designed to deal with the following variables:

G: General pressure for overt activity.

"Are you inclined to be quick in your actions?"

"Are you the kind of person who is 'on the go' all the time he is awake?"

"Do you often find yourself hurrying to get places even when there is plenty of time?"

"Would you rate yourself as an impulsive individual?"

A: Ascendancy in social situations.

As opposed to submissiveness and social passiveness.

M: Masculinity of attitudes and interests.

As opposed to femininity of "emotional and temperamental make-up."

I: Lack of inferiority feelings; self-confidence.

N: Lack of nervous tenseness and irritability; composure.

From analysis of the various types of questions presented in *GAMIN*, the factor *G* seemed especially likely to be positively related to laboratory measures of vigor and motility, with both *A* and *M* possible correlates.

It was decided to include in the laboratory phase of the study a measure of steadiness, for the purpose of determining the correlation of this overt measure with *N* (freedom from neurotic tendencies).

C. PROCEDURE

1. The Subjects

The subjects were 50 young college women, all members of undergraduate classes in psychology. The students were uninformed concerning the nature of the experiment.

2. The Materials

The abridged edition (1943) of *The Guilford-Martin Inventory of Factors GAMIN* was used as the paper-and-pencil measure of personality traits. The laboratory apparatus for measuring strength of grip, speed of tapping, and steadiness included a hand dynamometer (Marietta), a tapping board connected with an electrical counter, and the nine-hole steadiness apparatus.

3. *Method of Administration*

The subjects were scheduled individually for all the measures, *GAMIN* and the laboratory tests, except for a few cases when it was feasible to have very small groups for the *GAMIN*. The conventional procedures were employed in the use of all the materials. For the laboratory measures, each hand was tried three times and the mean of the better hand was taken as the score. The trial period was one minute for the tapping, 15 seconds for grip and for each hole of the steadiness test. After the subject had been directed in the correct position of the dynamometer test, she was told simply to "squeeze" the apparatus, not to press as hard as possible, but she was directed to tap as rapidly as possible.

D. THE RESULTS

In Table 1 are presented the coefficients of correlation (product-moment r 's between the laboratory measures of strength, motility, steadiness, and the *GAMIN* scores for the 50 young women who served as subjects. Table 2 shows the means and the standard deviations for all the measures obtained.

TABLE 1
COEFFICIENTS OF CORRELATION: SCORES *GAMIN* AND THE THREE LABORATORY
MEASURES: DATA FOR 50 SUBJECTS

	<i>G</i>	Personality inventory			<i>N</i>
		<i>A</i>	<i>M</i>	<i>I</i>	
Laboratory measures					
Grip	.25	.35	.29	.16	.07
Tapping	.27	.33	.26	.22	.05
Steadiness	.18	.07	.20	-.11	-.01

TABLE 2
MEANS AND STANDARD DEVIATIONS: SCORES *GAMIN* AND THE THREE LABORATORY
MEASURES: DATA FOR 50 SUBJECTS

Trait measured	Mean	Standard deviation
• <i>G</i>	12.46	4.60
• <i>A</i>	19.24	7.02
• <i>M</i>	13.46	3.88
• <i>I</i>	31.60	8.05
• <i>N</i>	23.30	7.16
Tapping rate	204.10	25.37
Strength of grip	40.06	7.20
Steadiness	4.97	1.41

E. SUMMARY OF RESULTS

In the present study, laboratory measures of vigor (strength of grip) and motility (tapping speed) have positive but low correlation with the following Guilford-Martin "factors": *G* (general pressure for overt activity), *A* (ascendancy in social situations), *M* (masculinity), and, to a less degree, with *I* (self-confidence). The slightly higher coefficients obtained for *A* over *G* were unexpected, but with only 50 subjects this difference is not significant. The coefficients approach statistical significance at the .01 level only in the correlation of *A* with grip (.35 for 50 subjects) and *A* with tapping (.33).

The factor *N* (freedom from neurotic tendencies) has no correlation with any of the laboratory measures employed; nor does the measure of steadiness have any significant relationship to any of the personality factors *GAMIN*. Reference to Table 2 shows that the variability in steadiness scores is small ($\sigma = 1.41$). Investigation of the individual scores made on *N* also revealed a fairly homogeneous group, with no subject extremely high or low, according to the Guilford-Martin table of norms. The lack of marked variability in these two types of measures may account in part for the very low or zero coefficients obtained.

F. CONCLUSIONS

The low correlation coefficients obtained for the 50 subjects do not justify definite conclusions. A tentative assumption is that Factors *GAMIN*, five of the Guilford-Martin "temperament variables," differ somewhat in the degree of involvement with that "vigorous and vital activity" which Allport has characterized as one of the "tap-roots of personality." Factor *G* (general pressure for overt activity) clearly has to do with vitality and impulsiveness, qualities of temperament; *A* (ascendancy) may also involve these qualities in part because of native endowment; and *M* (masculinity) may similarly be in part a constitutional quality. On the other hand, self-confidence and lack of nervous tenseness may be more largely psychogenic, more dependent upon the whole life history. The results of the investigation tend to support this hypothesis.

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The *Journal of Genetic Psychology*, the *Journal of General Psychology*, and the *Journal of Social Psychology*, will buy competent reviews at not less than \$2 per printed page, and not more than \$3 per printed page, the total to be not more than \$15.

Conditions. Only those books that are listed below in this section are eligible for such reviews. In general, any book so listed contains one or more of the following traits: (a) Makes an important theoretical contribution; (b) consists largely of original experimental research; (c) has a creative or revolutionary influence in some special field or the entire field of psychology; (d) presents important techniques.

The books are listed approximately in order of receipt, and cover a period of not more than two years. A reviewer must possess the Ph.D. degree or its equal in training and experience.

Procedure. If among the books listed below there is one that seems important to you, you are invited to write a review of that book. It is not necessary to make arrangements with the Editor. It does not matter if the book has already been reviewed.

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The Journal of Social Psychology, 1954, 40, 191-192.

(White, R. W. *Lives in Progress: A Study of the Natural Growth of Personality*. New York: Dryden, 1952, Pp. 376.)

REVIEWED BY MARTIN M. GROSSACK

Lives in Progress makes at least two important contributions to psychology: (a) It is a detailed study of normal people in American society. (b) It continues and crystallizes the trend among psychologists (Maslow, Lindner, Fromm, Goldstein) to value growth rather than adjustment as a personal goal.

Those familiar with Professor White's *Abnormal Personality* will find his *Lives in Progress* an equally, if not more, stimulating work. This volume integrates a scholarly presentation of approaches to personality theory with the data of three normal subjects. In addition, White presents what seems to be his philosophy of personality stressing personal growth as a *summum bonum*.

The nine very readable chapters include one structuring his orientation, three case histories of normal subjects, discussions of biological, psychodynamic, and social determinants, a brief treatment of personality assessment and a provocative emphasis on growth rather than the too commonly upheld therapeutic values of conformity and adjustment.

White introduces the student to personality with the vivid, intimate, unique details of a biographer, while attempting to analyze his data with the available concepts provided by the behavior sciences. By illustrating a multiplicity of concepts in their interdependence to portray individuality, White makes theory a practical tool for his reader. His subjects, studied while undergraduates and later as more mature adults, are compared as to similarities and differences in personality structure and behavior.

There is a stress on detailed case histories over a long period as a mode of developing personality science. It was not until 10 years after originally studying one individual with a battery of instruments that a long history of stuttering was discovered. How inaccurate many case histories and clinical judgments must be! New data on the life of Joseph Kadd will capture the attention of those familiar with White's earlier work. The collection of data

throughout the lives of normal individuals demands attention to problems that have not received enough concern (e.g., continuous change and interpersonal relations over a long time period).

White's conceptualization of personal growth in terms of both the direction and process of individual change is worthy of attention. Within this framework he indicates operational indices of growth: "the stabilization of ego identity, the freeing of personal relationships, deepening of interests and humanizing of values." These aspects of growth may be of special interest to those concerned with therapeutic goals.

Sociologists will find his treatment of culture, stratification, mobility, and social rôle linked to individual members of society. The rôle of the physician is described from the orientation of Parsons and personality differences in rôle performance are vividly illustrated. As a social psychologist, the writer found White's treatment of social learning, interaction, self-perceptions, and opinion in relation to personality scholarly and closely tied to his data. There is an explicit concern with interpreter bias and mention of the fact that many of the judgments were derived through the collective efforts of several colleagues.

Some of White's theoretical discussions are too condensed to be read without previous class or textbook preparation. It is unfortunate that at least one individual who did not attend college or differ markedly in social background from his subjects could not have been as intensively studied.

It is heartening to read a personality study of normal subjects. The science of personality cannot rely on clinical cases for its data.

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ATTITUDE TOWARD AUTHORITY: AN EXPLORATORY STUDY*

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A. THE PROBLEM

Modern society is erected upon a vast psychological structure of reactions to symbols. Not only is our economic system operated largely on faith, but our political institutions as well—to say nothing of religious organizations. The individual's acceptance of and conformity to these symbols is dependent upon the fact that they carry the force of authority. The whole complex pattern of coördination of human beings, unconsciously coöperating and competing with each other, depends upon the fact that the average man feels that he must accept certain rules and act in accordance with them.

The exact nature of authority is not a matter of general agreement among social scientists. It is variously imputed to the culture as a whole, to codified rules and laws, to persons filling social rôles designated as authoritative, to experts in specified areas, and so on.

For purposes of psychological research it seems best to define authority as a characteristic ascribed to specific individuals by virtue of their social rôles. Authority, then, inheres in the person who submits, not in the person who is perceived as authoritative. Our culture defines certain social rôles as authority-bearing, and persons filling these rôles are viewed as authorities. We have governmental, economic, and religious positions, formally or informally designated as seats of authority. Suggestions emanating from these sources seem likely to be especially effective in terms of the attitude of submission to authority, which has been observed in many individuals. This is a somewhat more realistic way of looking at the situation than simply to speak of the authority of the culture as a whole. While there is no question that the impact of the culture on the new individual is authoritarian in character, it seems better for psychological purposes to attempt to identify personalized sources of authority rather than simply to leave it relegated to the vague area of culture in general.

As Margaret Mead (3) has recently pointed out: "Institutions persist by being embodied in each generation, which must learn the appropriate

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character structure, and changes in any society of any duration must be expressed in changes in these learnings." Authority is not something which exists outside the individual; his readiness to submit is a function of his own early experiences.

The most vigorously propagated theoretical interpretation as to the nature of these early experiences is the Freudian view. Commenting on the widespread willingness of the masses of people to submit to leadership even when it threatens them with destruction, Ernest Jones (2) observes:

One must suppose that there is more power behind the leader's voice than is to be explained on purely rational grounds; that there is some deep irrational tendency to support and obey him (or the Government, which may be regarded as one Big Man) irrespective of whether individual members would agree with his policy if they were in a position to estimate it coolly. Even the Communists, who might be supposed to be furthest away from class distinctions and the worship of individuals, however prominent, have deified Lenin to a height perhaps unequaled in history (pp. 53-54).

Among the truly unconscious attitudes of infancy, an extremely important one is the attitude toward an image, highly charged emotionally, of a powerful Father. This is independent of the actual male parent. . . . A rich complex of emotions clustered around this image: adoration, hatred, dread, and so on. . . . An easily intelligible component in this complex is the wish to be protected from danger and the belief that the great Person has absolute power to protect one (p. 55).

Here, as in so many instances, it is difficult to pin the Freudians down to a precise position which can be subjected to test. Jones holds that the child's attitude toward authority derives from experiences with the father, and yet is independent of the specific male who plays the father rôle! However, it seems defensible to assert that boys differing in their attitudes toward authority ought to show some differences in reported experiences with their fathers.

The social importance of attitudes accepting or rejecting authority hardly requires emphasis. The submission of the Nazi to Hitler, of the Communist to his party, of the Catholic to his church, are all matters of obvious significance. Similarly, the attitudes of workers toward the authority of the employer or the union official may be most important in concrete industrial situations. Some of us, as college professors, become keenly aware of these attitudes in students who are capable only of regurgitating authoritative utterances, and—at the other extreme—students who most irrationally fight any attempt by the teacher to guide their learning activities. Revolutionary programs inevitably attract persons who have a strong need to rebel against

established authority; the generalized character of such an attitude is suggested by the fact that these persons often rebel simultaneously against authoritative standards in economic, political, and moral codes.

These considerations lead to the conclusion that social psychologists need to explore the nature and origin of the individual's attitude toward authority. In the present study, which is frankly conceived as an exploratory investigation, only two hypotheses were formulated: (*a*) that there is a generalized attitude of accepting or rejecting authority which can be identified in college men; and (*b*) that a major source of this attitude can be found in the boy's relationship to his father.

B. METHOD

Most of the data reported here are derived from an attitude inventory routinely administered to the author's classes. A set of 10 opinion statements, presumably relating to the individual's acceptance of or rejection of authority, was collected from various sources, and included in the inventory. The 10 statements, shown in Table 1, were arbitrarily scored in such a manner that a high score indicated submission to authority and a low score indicated resistance to authority.¹

Extreme groups were selected by taking all men scoring 50 or above as "pro-authority" and all men scoring 42 or below as "anti-authority." From a total of 575 cases, this gave us 88 pro-authority men and 145 anti-authority men.²

The characteristics of these two groups have been determined in two ways: by computing their mean scores on other parts of the attitude inventory; and by item counts of responses to specific opinion statements.

A second part of the study involves projective data from two very small groups of men meeting the same criteria of scores on the authority scale as those in the preceding part.

C. RESULTS

We may first inquire about the internal consistency of the authority scale. If it is internally consistent, then the two extreme groups as defined should

¹Each item was answered on a 5-step scale. Strong acceptance of the authoritarian position was scored +2, moderate acceptance +1, strong rejection -2 and moderate rejection -1. The resulting scores ranged from -16 to +7, and these were converted to positive scores by adding 50 to all values. Thus a "neutral" score was 50, but the obtained median was 44, indicating a normal rejection of authority by young men in college.

²The cut-off points were originally selected to segregate the upper and lower 25 per cent of the distribution. However, this would have caused the pro-authority group to include cases below the neutral point. These cases were eliminated, leaving the groups as defined above.

differ significantly on every individual item. Table 1 indicates that this is correct. Nine of the 10 items are differentiated at beyond the 1 per cent level of confidence, the remaining one meeting the criterion for the 5 per cent level. This result may be interpreted as indicating that the items are

TABLE 1
A SCALE FOR ESTIMATING ATTITUDE TOWARD AUTHORITY

Items	Percentage Endorsement by Men	
	<i>Accept Auth.</i>	<i>Reject Auth.</i>
1. No matter who is president, all of us should unquestioningly carry out his orders.	63	10
2. The individual owes his first duty to the State, and only secondarily to his personal welfare.	47	06
3. Democratic processes must be carefully protected in this country even if efficiency is thereby reduced somewhat*.	65	77
4. It is impossible to apply democratic principles to the operation and management of large industries.	30	08
5. A citizen has a right to refuse to support national policies which he believes to be wrong.	45	94
6. A citizen has a right to refuse to support national policies which have not been democratically approved.	49	91
7. Do you mind taking orders from a person duly authorized to issue them? (yes)	11	38
8. People may be urged but should not be forced to cooperate in group action (e.g., national action).	52	84
9. In times of impending national crisis it is proper to suppress minorities who desire to criticize the government.	83	36
10. Discipline and obedience to authority are values indicative of the highest citizenship.	84	17

*The differences for all of these items are significant at the 1 per cent level except for the starred item ("Democratic processes") which is significant at the 5 per cent level.

tapping some generalized attitude, and do not vary randomly or independently of each other. On the whole, the items are loaded with references to the authority of the nation, but Items 4 (large industry) and 7 (taking orders) clearly conform to the general pattern.

With this assurance that we are dealing with a somewhat generalized tendency, we can proceed to determine the correlates of acceptance and rejection of authority so defined. Table 2 shows the comparison of our pro- and anti-authority groups on the 10 other scales included in the inventory.³

³For further data on these scales, see Stagner (4) and (5).

It appears from this table that attitude toward authority, at least in our scale, is closely related to other conservative economic and social attitudes. The pro-group scores higher than the anti-group on hostility to unions, endorsement of war as a national policy, nationalism and intolerance for

TABLE 2
ATTITUDINAL DIFFERENCES BETWEEN COLLEGE MEN WHO ACCEPT AND THOSE WHO REJECT AUTHORITY

Attitude scale	Mean score		CR	Authority acceptance is associated with:
	Accept	Reject		
Labor Unions	50.25	54.35	3.08**	dislike of unions
Capital Punishment	47.23	46.21	1.53	approve punishment
Force	52.07	50.41	2.32*	approve forceful conflict solutions
Father	35.25	36.34	1.09	liking father
War	46.77	41.96	4.97**	endorse war as national policy
Mother	40.14	41.02	0.83	liking mother
Nationalism	50.41	45.48	6.43**	high nationalism
Intolerance	44.67	40.14	6.12**	less tolerance of minorities
Personal Morale	56.52	57.01	0.68	less self-confidence
Family Morale	62.13	62.23	0.11	less satisfaction with family

*Significant at 5 per cent confidence level.

**Significant at 1 per cent level.

N = 88 accepting (about 15 per cent of distribution), 145 rejecting (about 25 per cent of distribution).

minorities (1 per cent level) and approval of the use of force in conflict situations (5 per cent level). Since aside from nationalism, none of these issues overlaps with the content of the authority scale, we are led to the belief that these attitudes form a psychologically congruent pattern for our subjects. This is entirely plausible, in the first place, because these attitudes are still associated with upper-class status (positions of authority) in our culture, and in the second place, because they are associated with the upper-class families from which most of these boys came. This latter point is very important, because incidental tabulations show that occupation of father was virtually identical for the two groups and economic status was quite similar.⁴

⁴The status indicators used are father's occupation and reported family income. Here are the trends: father in business, pro- 63 per cent, anti- 61 per cent; profession, pro- 25 per cent, anti- 28 per cent. Reported family income: over \$10,000 a year, pro- 45 per cent, anti- 39 per cent; \$2,000 or less, pro- 03 per cent, anti- 08 per cent. The estimated mean income was \$7,159 for pro-, \$6,593 for anti-authority group. There is a possible bias in that more anti-cases may have treated themselves as independent families; pro-authority subjects may have included parental income more often.

We can hardly ignore the close agreement between these findings, based on a purely objective analysis of attitude test responses, and those of Adorno *et al.* (1), developed around the concept of "the authoritarian personality" and identified, in some instances at least, by methods the objectivity of which may be questioned. The highly significant difference in tolerance for minority groups among our subjects is especially notable, since prejudice, not authoritarianism *per se*, was the original focus of the California studies.

No significance can be attached to family factors on the basis of Table 2. While there are suggestive trends for the pro-group to like father and, mother relatively more than do the anti-group, neither difference approaches the 5 per cent of significance.

Despite this disappointment, we were reluctant to abandon the Freudian hypothesis immediately. Two other efforts were made to seek out evidence bearing on it. The first was based on the assumption that our groups might be contaminated by mixing in men who consciously disliked "father" but unconsciously accepted "the father-image" as evoked by authority symbols, and conversely, some men might consciously report liking the father but unconsciously reject the father as authority-symbol. It was thought that this might diminish the relationships among the various attitudes measured.

Table 3 indicates that eliminating these potentially confusing cases

TABLE 3
ATTITUDINAL DIFFERENCES BETWEEN COLLEGE MEN ACCEPTING AUTHORITY AND LIKING FATHER, AND THOSE REJECTING AUTHORITY AND DISLIKING FATHER

Attitude scale	Mean score		CR	Authority—father acceptance goes with:
	Accept	Reject		
Labor Unions	48.80	54.98	3.34	dislike of unions
Capital Punishment	47.05	46.23		approve punishment
Force	53.50	49.93	3.72	approve force
War	46.92	41.59	3.86	endorse war
Mother	36.40	42.53	5.07	liking mother
Nationalism	50.77	44.15	6.43	more nationalism
Intolerance	45.37	39.70	5.06	less tolerance
Personal Morale	58.15	56.29		more self-confidence
Family Morale	65.37	60.16	•	more satisfaction

All critical ratios shown are significant beyond the 1 per cent level.

*Some items in this scale relate to the father, hence the difference is in part spurious or at least ambiguous.

sharpens the data slightly. The critical ratios in this table are of the same general magnitude as in Table 2, but the absolute score differences have in most cases increased. (The reduction in size of sample prevents an increase in CR.) Table 3 shows only the means for the two extreme groups

"accept authority—like father" and "reject authority—dislike father." We also computed the means for the other groups, and found a rather consistent hierarchy: most conservative was "accept authority and father," second was "accept authority—dislike father," third was "reject authority—like father," and fourth, "reject authority—dislike father." It appeared that there was some kind of reinforcing effect of the two attitudes, in terms of their relations to the other scales.

The second general method was to run an item count of all 135 statements in the attitude inventory for the two large groups, pro- and anti-authority. Items which showed differences at either the 1 per cent or 5 per cent confidence level (except for those in Table 1) are shown in Table 4. The number of respects in which this fits the data of the Adorno group (1) is amazing. Not only do we get highly significant evidences of ethnocentrism (hostility to minorities, national egotism) but we also find striking support for the over-idealization of the parents on the conscious level coupled with cautious indications of distance from parents (both are said to have preferred a child of opposite sex.) The authority-accepting son seems to be characterized by his acceptance of strict discipline because the father is felt to be fair. What better psychological base could exist for acceptance of a higher authority, the nation?

While the findings reported above seem to confirm in some respects both the general Freudian theory and the elaboration of it in *The Authoritarian Personality*, they are based entirely upon "conscious" data in the sense that subjects were responding to culturally defined verbal stimuli. Some psychologists feel that projective-type data are more effective in revealing "unconscious" or concealed attitudes. It is obvious, of course, that it is somewhat more difficult for the subject to decide what kind of answer will be culturally approved. We therefore decided to run a small follow-up study to see whether projective material would support the above findings.

A series of 14 pictures was presented on a screen before a class, and each student was asked to "write a story about this picture. Write down what you first think of as you look at it." The pictures covered a wide range of situations which we hoped would evoke authority-related responses. Only 6 pictures produced material which seemed to differentiate the two extreme groups.⁵

1. *A man is resting his head on his arms, on a table in a large room.*

⁵The class included 23 men, of whom 5 met the "pro-authority" requirement of scoring 50 or above on the scale, and 7 met the "anti-authority" criterion of score 42 or less.

TABLE 4
DIFFERENCES ON SPECIFIC OPINIONS OF THE AUTHORITY-ACCEPTING AND AUTHORITY-
REJECTING GROUPS

	"Accept" group prefers
I am for labor unions 100 per cent	no*
A certain religious group teaches that it is sinful to salute any man-made emblem, even the United States flag. The parents should be jailed if they do not tell their children to salute the flag when others do so.	yes**
Many American families have been deprived of their sole income by the confiscation of oil wells in Mexico. The United States Army should be sent to compel an immediate, just settlement of this dispute.	yes**
Punishing a belligerent nation by force is much like crippling or killing a child for its misdeeds.	yes**
Foreign agitators in this country should be put in concentration camps.	yes**
A group of strikers have barred the entrance to a factory and prevent men who are willing to work from entering. It is proper for the police to use tear gas to break this practice.	yes*
My father has every quality I admire.	yes*
He has sometimes been unfair.	no**
I shall always look up to her as the ideal mother.	yes**
Although war is terrible, it has some value.	yes**
The United States should always be armed to the limit of its treaty rights.	yes**
War is the only way to right tremendous wrongs.	yes*
The benefits of a war rarely pay for its losses even for the victor.	yes*
Patriotism demands that the citizens of a nation participate in any war.	yes**
The desirable results of war have not received the attention they deserve.	yes**
Build up our military strength, on land and sea and in the air so that no nation or combination of nations would dare to attack us.	yes**
Establish higher protective tariffs, so as to build up American industry to a point of self-sufficiency where it will be independent of the entanglements resulting from foreign trade.	yes*
Reduce our naval and air strength until it is only strong enough to defend our shores and Hawaii—not the Philippines, nor our trade and investments in the Far East.	no**
Educate American children in the fundamentals of patriotism, making sure they realize that America has always stood for peace and justice among nations.	yes**
Oppose socialism, communism and other alien philosophies which threaten to make America more like the war-making dictatorships of Europe.	yes**
Make it perfectly clear that America is ready to defend herself—that anyone who attacks our honor or our vital interests must count on fighting it to a finish.	yes**

TABLE 4 (continued)

	"Accept" group prefers
Permanently keep away from entangling alliances which might limit our national freedom of action or involve us in the quarrels of other nations.	yes**
I would consider it undesirable to have a Chinese family move in next door.	yes*
Race prejudice is, on the whole, beneficial as it keeps many undesirable foreigners from the country.	yes*
I don't trust the Mexicans.	yes*
The restriction against Japanese land ownership in California should be lifted.	no**
Generally speaking, Americans are more intelligent and enterprising than people of most any other country.	yes**
Immigrants should not expect more than they now get, for we did not ask them to come, and their wages are better than they get at home.	yes**
The Jews are getting too much power in this country.	yes**
Looking back at your childhood now, would you say that it was happier than average?	yes*
Have you often felt inferior to your associates because of your economic status?	yes*
Are you satisfied with the way the government is running the country?	yes*
Would you say that generally you are a victim of bad luck?	yes**
Did your father ever express a preference for a child of the opposite sex?	yes*
Did your mother ever express a preference for a child of the opposite sex?	yes*
Have you, in recent years, wanted to be like your father in personality?	yes*
Have you, in recent years, wanted to be like your mother in personality?	yes**
Would you classify discipline in your home (during your childhood) as strict and severe?	yes**

*Significant at 5 per cent level.

**Significant at 1 per cent level.

Another man, close to him, is looking around. A brief case lies on the table. From both pro- and anti-groups, this usually evoked the idea of a courtroom scene, with a lawyer comforting a convicted client. However, there were some suggestive variations; one anti-authority case gave: "Boy has been involved in a crime and breaks down when father is told the news." Three men, one from the pro- and two from the anti-group, gave labor-management angles to the picture.⁶ The pro-individual wrote: "Labor-management discussion that includes some drastic consequences for laborers." The two anti-individuals gave: "A labor negotiator who is completely exhausted

⁶Since the pictures were presented in a class in the psychology of industrial conflict, it is inevitable that this type of content would crop up often.

and worn out from bargaining with the company and is being encouraged by a fellow union worker," and "One man apparently is accused of some misdemeanor against the company and is being comforted by his superior during confession as the superior faces the accuser." The latter is complex, but both show decided sympathy to labor, in contrast to the pro-authority case.

2. *A locomotive is emitting a cloud of steam. A boy in the cab is smiling; a man and a woman standing alongside appear frightened or upset.* The pro-group emphasizes the power of the person in the cab. "The woman's son is being burned by the steam from the locomotive. The engineer seems to be enjoying his sadistic deed." "This is an act in a 1920 melodrama. The person (can't see whether male or female) is jealous or in love with one of the two individuals being run down. He can't have either of them so he kills them both." "Lives of people endangered in railroad station as strong political party takes control by force."

The anti-authority subjects show an interesting emphasis on the child in the cab. (Not one of the pro-group mentioned that he was a child.) "Here some children have gotten into a steam locomotive and have scared two persons going by, by letting out steam near them." "The child in the cab of the locomotive has started it moving. His parents are looking for help, and are overcome with fright." Another tempting projection is: "Daughter and father hope to stop train in which daughter's husband is deserting her." Finally, one anti-authority case brought in a "bad" authority figure: "Refugees trying to escape some soldiers by running to a train. Probably being fired upon by the soldiers. Man looks shot. (Reminiscent of Nazi Germany.)"

3. *A man, standing, overshadowed by a giant hand outstretched.* The responses of the pro- and anti-groups are almost entirely different, though in varying directions. In general the pro-group perceives the hand as protective or controlling but not threatening: "The picture shows how the man feels when he is in close contact with nature. A governing hand." "The hand of God is sheltering the business man. Implication is that business men or owners have the Divine Right to run their businesses as they please." "Portrayal of a supposedly free individual in the midst of a speech where in reality he is 'under the hand' of some controlling power." "This would make a very good advertisement for a life insurance company. Or it may serve as a satirical cartoon for socialized medicine."

In contrast, the anti-responses run to forbidding, threatening themes: "The person in the background is about to (make) a decision which is forbidden." "Here we have a symbol of one man's insignificance in relation to events and

time. God's power to wipe him out of existence if he wills it." "Man is denied, but pretends not to understand why, though on an unconscious repressed level it is clear to him." "Relates the insignificance of any one person in the United States as a whole. If one man steps out of line, he will be put in his place and never missed."

The two exceptions in the anti-group, who perceived the hand as protective, are nevertheless distinctively different from the pro-group. "The hand represents the freedom to disagree against the majority and have the right to say what you believe is right." "Perhaps symbolic of the hand of God offering a protective hand to an average working man. Perhaps the figure is supposed to illustrate the average American." Note the protection is being extended to dissenters and workers, not to business men.

4. *Four children, apparently Indian; three in a close group, the fourth outside, looking at them.* Two of the pro-group gratuitously contributed the idea that the parents were away working, while none of the anti-group evoked parent images. Four of the anti-group emphasize the split between the group of three and the fourth child, while only one in the pro-group mentioned this. We are inclined to interpret this as support for the evidence on relations with parents (in the preceding section) and possibly to indicate greater concern with the peer group among the anti-authority subjects.

5. *The TAT picture of an older and a younger man.* The emphasis of the pro-group is on the father helping the son, or turning authority over to him. "A business man is telling his son that when he (the son) gets to be president of the company that he will have to continue running the plant with an iron hand or else the union will take control away from him." "Father and son—the father, being old, is turning his position over to his son to carry on."

The anti-group are on the whole non-committal about the kind of advice being given to the younger man. One characteristic response was: "A father is giving his rebellious son some advice. The father seems to be disappointed." This certainly fits the Freudian hypothesis. A surprising one: "Couple is plotting revenge against Grandmother." This may indicate the nature of the authority figure in this boy's life, but we have nothing to confirm it. On the whole, the responses conform to the hypothesis of rebellion or distance from the father.

6. *Two robed and masked figures, one in black, one in white, handling guns and blackjacks.* In virtually all cases the figures were interpreted as members of the Ku Klux Klan. However, there were interesting differences in the responses given. In the pro-group, three answers emphasize Negroes, two of them implying that the Negro is guilty of a crime. None of the anti-

group mention Negroes. Here again we get a confirmation of the "authoritarian personality" studies: the concern of the pro-authority subjects with group differences, and the tendency to assume the worst as regards minorities. One pro-subject managed to oppose the Klan while maintaining his power orientation by having the Klan officers surrendering their weapons to the authorities.

D. DISCUSSION

The data from both studies are in agreement in indicating that attitudes accepting or rejecting generalized authority have significant correlations with parent-child interactions (as perceived by the subject). Both types of material suggest that the development of an attitude favoring strong authority involves conscious idealization of the parents and perception of parent-figures as helping and protecting; whereas hostility to authority seems to go with conscious emancipation from parents and perception of parent-figures as repressive and inhibiting.

In both cases we also get confirmation of the conservative, ethnocentric orientation of the pro-authority subject. This fits in with the loose interpretation of authority as inhering in the culture as a whole. Authority figures will necessarily tend to be identified with the status quo in economics, religion, politics, and race relations.

There is, of course, a major fallacy in the data—or rather, there is a problem of defining terms. The opinion statements used in measuring the authoritarian attitude explicitly refer to established, culturally acceptable authority-figures. There is a very important possibility that our rebels have just as strong a craving to submit to authoritative leadership as do the conservatives, but the leaders they seek must not be identified with the existing cultural order. This is the view suggested by Jones (2) in the quotation cited earlier. The Communist who revolts against established authority still needs the protection of an all-powerful figure, and creates a Lenin or a Stalin to fill this psychic need. (There is, of course, the more cynical interpretation that the deification of leaders in Russia is propaganda for mass consumption, not accepted by the elite.)

Submissiveness to authority must be conceived as the outcome of a learning process. We might hypothesize that the boy, in choosing among alternative responses to cues, has his own response-tendencies, based on his personal perception of the situation, and a response suggested by his father, based on perceptions which include more information. Thus the boy learns that when he acts on his own, he meets frustration and discomfort, whereas, when he bases his action on the parental guide, he achieves success and

tension-reduction. But this is equally true for the authoritarian and the non-authoritarian. How does it help us to explain the difference between those who accept and those who reject authority?

We suggest that this depends upon how the boy perceives his father (which in turn is a function of the father's behavior). Let us suppose that one father gets ego-gratification out of his superiority to his son. He ascribes omniscience to himself ("Papa always knows best") and emphasizes the weakness of the son. He may talk about the son's obligation to "do as Daddy says." He may warn of the dangers of self-reliance. This series of experiences would tend to build, in the boy's mind, a perception of "Father" as an all-seeing, all-knowing entity who must be obeyed at all costs.

• The contrary example would presumably be that of the father who encouraged independence and self-reliance. However, our data suggest another interpretation. If the father is too inhibiting, or if he fails to back up his pose of omniscience with adequate wisdom, the son may reject this proposed authority figure entirely. He may look upon other adults (school-teachers, government officials, employers) who adopt the pose of authoritarian figures as similarly repressive or incompetent. According to our reading of the data, the boy whose father deliberately fosters independent thinking is intermediate rather than extreme on the authority scale.

The foregoing analysis could have been phrased in terms of the acquisition of responses. We have preferred the language of perception for this reason: one of the facts we have, from the Adorno studies, from studies of the Nazi leaders, and from studies of business executives, is that the authoritarian personality, when he switches from a follower rôle to a leader rôle, changes his overt behavior drastically. From a predominance of submissive, obedient responses he switches to a predominance of orders and demanding responses. In terms of response theory, this seems to present a dilemma. Why does the individual suddenly abandon his rewarded response-patterns for a new set?

The language of perception offers a resolution of this dilemma. The follower has a certain perception of the authority figure, the leadership rôle. As long as another person fills this rôle, he submits. But when he himself is promoted to leader, he at once begins to act out the patterns which look appropriate to his new status. This can be observed in the military services, in industry, in any hierarchical structure.

We, therefore, prefer to treat our evidence in terms of what it shows about the son's perception of his father, and how authority-figures are perceived as stimulus equivalents. No doubt every social perception is accompanied by a response; but, in social contexts such as that involved here,

prediction of future behavior is much more successful in terms of perception than in terms of past behavior.

One fact is certain. With growing populations, and increasingly complex institutional structures, the power of leaders will increase. The ability of individuals to choose rationally, to evaluate alternative sources of authority without compulsion from unconscious emotional attitudes, is crucial to the survival of a liberal-democratic culture. Psychological research on the conditions determining the authority-relationships of the individual is urgently needed.

E. SUMMARY

1. A 10-item opinion scale gives an internally consistent measure of a generalized attitude which we have called acceptance of authority. Endorsement of the items reflects a conscious tendency to submit to established authority-figures.

2. Persons accepting authority as defined show a conservative orientation, hostile to labor unions, endorsing war as a policy, nationalistic, intolerant of minority groups, and leaning to forceful solutions of social problems.

3. No gross differences in attitude toward parents or family are shown by the data. However, item counts suggest a trend for pro-authority subjects to have a conscious idealization of parents accompanied by some latent feeling of distance from them. They perceive discipline in the home as strict but fair.

4. Projective responses to pictures suggest that pro-authority men are more concerned about power, more in need of a definite relationship to parents, more ethnocentric, less sympathetic. Anti-authority men perceive authority figures as inhibiting and threatening.

5. We need to know more about the person rejecting established authority, in terms of his tendency to submit to rebellious leaders. We also need to know what kinds of objective conditions are most favorable to the development of emotional freedom to evaluate leaders rationally.

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PUBLIC ATTITUDES TOWARD SCIENCE: I. ATTITUDES OF SECONDARY SCHOOL FEMALE STUDENTS*

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A. INTRODUCTION

The direction of scientific advance is far from a random affair. Like all behavior, scientific activities are embedded in a social structure. Inquiries into the reciprocal relations of science and society have shown how a favorable system of religious values made possible the growth and development of a scientific body of knowledge. Application of the knowledge thus gained has changed not only the face of the environment in which we live but generated a changed set of attitudes toward science itself.

So intimate is the relation between the social evaluation of science and the areas of scientific emphasis that a careful "tracking" of the former might give important clues about the direction of the latter. Applied science may be even more susceptible to social pressure than theoretical as Vannevar Bush points out in *Modern Arms and Free Men* (1).

But applied science, the intricate process by which new knowledge becomes utilized by the forces of engineering and industry, pursues the path pointed out to it by authority. In a free country, in a democracy, this is the path that public opinion wishes to have pursued, whether it leads to new cures for man's ills, or new sources of a raised standard of living, or new ways of waging war.

As Bush points out, public attitudes toward science are an important determinant of the course of scientific behavior.

Presently the fruits of scientific endeavor are considered a mixed blessing, inspiring both awe and apprehension. Accompanying this ambivalence are changes in the cognitive pictures of scientists—information about scientists and behavior expectations. The purpose of this study is to explore some of the categories available to people in classifying favorably and unfavorably evaluated scientific behavior.

B. PROCEDURE

As a first step in the study of the changes in cognitive classifications and expectations of scientific behavior, we selected a homogeneous group of 294

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girl students from the fifth grade through high school of an "elite" private school in a large Eastern seaboard city. Children were selected as subjects on the premise that attitudes are revealed by them with more clarity and simplicity than is true for adults. In addition, changes in the development of cognitive structure of attitudes might be noted with increasing age.

The method of study used was a repetition of "open-end" questions, a procedure which is "projective" in that it supplies minimal cues to the respondent as to how the interviewer expects him to answer the question and thus forces the respondent to reveal his own frame of reference in answering the question. Suggested by Alex Bavelas, the method has been used by Kallhorn and is thoroughly discussed by her (2).

Simple wording was necessary to make the questions intelligible in the lower age ranges. The questions were:

"A scientist did something that was a (good) (bad) thing to do.
What was it?" This was followed by:
"What happened because of this?"

To reduce the effects of recent experiences on the responses, each question was repeated three times inserting "very" before the "good" or "bad" in the second question and "very, very" in the third question. Although the girls showed some signs of rebellion at this unusual repetition, fewer than one per cent of the responses were omitted. Administration was oral to eliminate the effect of anticipation of subsequent questions on the present response. To stabilize the effect of question order on response, presentation of questions was varied from class to class.

The method of analysis used was content analyzing the responses into categories by majority agreement of three coders and then asking a series of questions of the data. Stimulation for the questions asked was derived chiefly from Talcott Parsons' discussion, "The Institutionalization of Scientific Investigation" (4), and two chapters by Robert Merton, "Science and the Social Order" and "Science and Democratic Social Structure" (3).

The response measure used was the number of children mentioning a category. The percentages reported are the ratio of number within a category to the total population. Comparisons are made between "GOOD" and "BAD" classifications and between younger (Grades 5-8, $N = 132$), and older (Grades 9-12, $N = 162$) children. The major content analysis classifications were developed to answer the following questions:

- | | |
|--|---|
| (a) What activities do scientists engage in? | (a) Scientific inventions, discoveries, and research. |
|--|---|

- (b) What procedures do they follow? (b) Qualitative aspects of scientific procedures.
- (c) Why do they engage in these activities? (c) Motives of the scientist.
- (d) What are the consequences of these activities for the scientist himself? (d) Gratifications and punishment of the scientist.
- (e) What effects do these activities have on others? (e) Effects of scientific activity.
- (f) What are the cumulative effects of these activities? (f) Scientific knowledge.

The sub-classifications will be explained as the data is analyzed.

C. RESULTS AND INTERPRETATION

1. *Categories of Research and Invention Applied to Positively and Negatively Valued Scientists*

Popular support of the scientist in our sample is based on expectation of "miracle cures" and material benefits (Table 1). Three-fifths of the girls mention the curing of disease as a "good thing to do" and over one-fifth mention an appliance or machine that makes life more comfortable or entertaining.

No category is overwhelmingly mentioned on the "bad" side, as shown in

TABLE 1
BEHAVIOR OF "GOOD" SCIENTISTS

	Grades 5-8		Grades 9-12		Totals	
	N	%	N	%	N	%
Medical Science, cures and benefits	63	(38)	133	(82)	196	(60)
Appliances, Machines, and Material						
Goods	27	(20)	37	(23)	64	(22)
Applied Chemistry	23	(17)	12	(7)	35	(12)
Scientific Research, increments						
to knowledge	19	(14)	16	(10)	35	(12)
Peacetime and constructive use						
of atomic research	4	(3)	31	(19)	35	(11)
Unspecified Discoveries	14	(11)	17	(10)	31	(11)
War Weapons, Guns, War						
Techniques	10	(8)	9	(6)	19	(7)
Food Technology, Agricultural						
Research	10	(8)	8	(5)	18	(7)
Science Fiction (comic books)	10	(8)	8	(5)	18	(7)
War and threatened use of the						
atom bomb	8	(6)	8	(5)	16	(6)
Theoretical Chemistry	2	(2)	5	(3)	7	(3)
Totals	190	(135)	284	(175)	474	(158)

Note: The percentages reported are based on the total N's of 132 for the 5-8 grades, 162 for the 9-12 grades, and 294, total number of respondents. Percentages total more than one hundred as the major classifications are not mutually exclusive.

Table 2, and the distribution is very evenly divided. Interestingly, some supposedly useful inventions are seen as the cause of unfavorable events, e.g., "televisions cause eye-strain"; "automobiles run people over."

TABLE 2
BEHAVIOR OF "BAD" SCIENTISTS

	Grades 5-8		Grades 9-12		Totals	
	N	%	N	%	N	%
Explosions	30	(20)	32	(20)	62	(20)
Atomic and Hydrogen Bombs	13	(10)	41	(25)	54	(18)
Harmful Medical Procedures and Inventions	19	(14)	34	(21)	53	(18)
War Weapons, Methods of Mass Destruction	12	(9)	39	(24)	51	(17)
Use of Animals or Humans for Experiment	18	(14)	23	(14)	41	(14)
Science Fiction and Fantasy	20	(15)	20	(12)	40	(14)
Chemical Poisons, Gases	16	(12)	19	(12)	35	(12)
Harmful Effect of Supposedly Useful Invention	6	(6)	16	(10)	22	(8)
Totals	134	(100)	224	(138)	358	(121)

Note: The percentages reported are based on the total N's as in Table 1.

2. Classifications of Scientific Occupation

Tables 1 and 2 indicate overwhelmingly that the scientists whom the respondents have in mind are "applied scientists." In addition, the inference can easily be made that nearly all of the references are to physical scientists, particularly physicists and chemists. Evidently the work of other scientists is not as socially perceptible.

3. The Cognitive Linkage between Science and the Military

The invention of war weapons and techniques is favored by 7 per cent of the sample, and 6 per cent suggest the use of the atom bomb in war and as a stick to hold over the heads of our enemies. But the inventions of the atomic and hydrogen bombs are condemned by nearly one-fifth of the sample, and the scientific invention of war weapons and techniques is also disapproved by nearly one-fifth of the group. Older girls are significantly more likely to mention weapon invention in the negatively valued classification than younger girls. Invention of chemical poisons and gases is mentioned by 12 per cent of the students.

Commenting on the results of weapon invention—atomic and other—in answers to the question, "What happened because of this?", respondents uniformly mentioned world-wide destruction. The number who classify

the war use of the atomic bomb as "bad" is significantly higher than those who put it in the "good" category. Disapproval of atomic warfare is also expressed by its opposite—peacetime and constructive use of atomic research. This latter is mentioned much more frequently by the older girls.

No distinction is made between the invention of the atom bomb and other weapons and the widespread human and property destruction that follows. No intervening agency is mentioned by any of the girls. Antipathy toward the product of science is directed toward the scientist himself.

4. Dangers from Experimentation

The scientist is a source of anxiety not only because of his contribution to weapon invention, but his research activities are seen as dangerous to laymen (Table 3). Thirteen per cent of the group mention loss of life—

TABLE 3
NORMS GOVERNING SCIENTISTS

	Grades 5-8		Grades 9-12		Totals	
	N	%	N	%	N	%
<i>"Good"</i>						
Altruism vs. Egoism: personal self-sacrifice, aids others, patriotic, aids science	9	(7)	25	(16)	34	(12)
Good, Careful, Experimental Procedures	15	(11)	6	(4)	21	(8)
<i>"Bad"</i>						
Minor Carelessness Resulting in Property Damage	35	(27)	40	(25)	75	(26)
Major Carelessness, Mistakes, Lack of Skill With Resultant Loss of Life	19	(14)	20	(12)	39	(13)
Non-Rational Scientific Procedures: acting on insufficient evidence, failure to coöperate with others	6	(5)	32	(20)	38	(13)
Unmerited Credit, Dishonesty	8	(6)	20	(12)	28	(9)
Wasteful Use of Talents, Failure, Destructive vs. Constructive	2	(2)	13	(8)	15	(5)
Intent to Destroy People	6	(5)	6	(4)	12	(4)
Selfish Motives vs. Altruism	2	(2)	10	(6)	12	(4)
Totals	102	(79)	172	(107)	274	(91)

Note: Percentages are based on the total number of individuals in each group as in Table 1.

of both scientists and laymen—resulting from error, carelessness, and lack of skill, causing an "explosion in the laboratory." Twenty-six per cent of the girls mention laboratory accidents with resultant property damage. On the "good" side, 8 per cent of the girls mention the use of objective evidence and careful, skilled experimental procedures.

5. *Motives That Are Attributed to Scientists*

On the whole, the older girls are much more concerned with the motives of scientists (Table 3). As might be expected, few socially approved motives are mentioned, and disapproved motives are listed in greater detail. The good scientist is described as being collectively—rather than self-oriented. Twelve per cent of the students specify, as one of the chief aspects of the scientist's professional rôle, his responsibility to the society that supports his work. Four per cent characterize the "bad" scientist as one who works in his own behalf rather than for the "public good." Also indicative of the attitude that the scientist is responsible to society are the five per cent who scored the wasteful use of scientific talent, inability to achieve, and destructive rather than constructive research.

Departing from objective evidence and not sharing results with other scientists are disapproved of by 13 per cent of the sample, and taking credit for another's discovery is scored by 9 per cent. Evidently, the norms of scientific procedures are not only self-imposed by scientists, but enjoined upon them by a watchful society.

6. *Perceived Satisfactions and Punishments of Scientists*

The reward system is seen as primarily symbolic. Gratification, for the "good" scientists, consists of fame, status, and achievement (Table 4). Nine

TABLE 4
CONSEQUENCES FOR SCIENTIST

	Grades 5-8		Grades 9-12		Totals	
	N	%	N	%	N	%
<i>"Good" consequences</i>						
Fame, status, achievement	16	(12)	10	(6)	26	(9)
Money	5	(4)	1	(1)	6	(2)
<i>"Bad" consequences</i>						
Loss of status, respect	8	(6)	13	(8)	21	(7)
Legal Punishment	7	(5)	10	(6)	17	(6)
Killed, hurt, suicide	10	(8)	9	(6)	19	(6)
Totals	46	(35)	43	(27)	89	(30)

Note: Percentages are based on the total number of individuals in each group as in Table 1.

per cent of the total mention this reward. Several of the younger girls mention money as a reward for a scientist, but tangible gain is mentioned by only one of the older girls!

In the responses of the older girls, punishment is evenly divided among loss of status, position and respect, legal punishment, and death or injury—each mentioned by approximately 6 per cent of the total sample.

7. The "Psychological" Effects of Scientific Invention and Research

Older girls are significantly more aware of the contribution of science to mass security and anxiety as part of the arms race and political power

TABLE 5
PSYCHOLOGICAL EFFECTS OF SCIENTIFIC INVENTION

	Grades 5-8		Grades 9-12		Totals	
	N	%	N	%	N	%
<i>"Good" effects</i>						
Mass security, peace, reduction of anxiety	6	(5)	14	(8)	20	(7)
<i>"Bad" effects</i>						
Mass anxiety, insecurity, war scare, arms race, unleashing of destructive powers	5	(4)	23	(14)	28	(9)

Note: The reported percentages are based on the total N's as in Table 1.

conflict. The impact of science on mass feelings of "peace of mind" or panic is noted by approximately the same number of individuals, less than 10 per cent.

8. The "Communications Gap" between Scientist and Laymen

Over one-fifth of the students characterize the "good" scientist as a good teacher (Table 6). Appreciative of the gap between the frontiers of scientific investigation and the understanding and evaluation of scientific findings by laymen, they enjoin the scientist to be a capable teacher and transmitter of information. Nine per cent disapprove the scientist who withholds information, gives incorrect information, or is unclear in his writing or teaching.

9. Treason and the Scientist

"Knowledge is power" and our respondents find a potential source of anxiety in the possibility that the scientist may turn his information over to the enemy. Older girls are significantly more aware of this possibility than the younger (Table 6), with 14 per cent of the total mentioning this category.

TABLE 6
INFORMATION AND THE SCIENTIST

	Grades 5-8		Grades 9-12		Totals	
	N	%	N	%	N	%
"Good" distributor of information	32	(24)	27	(17)	59	(21)
"Bad" distributor of information	16	(12)	10	(6)	26	(9)
Gives information to enemy	9	(7)	32	(20)	41	(14)

Note: The percentages reported are based on the total N's as in Table 1.

D. DISCUSSION AND SUMMARY

An exploratory study of the categories available for classifications of negatively and positively valued scientific activity was carried out with 294 students, of an upper socio-economic school, as subjects. A technique of repeated open-end questions was used for exploring the cognitive picture of science when the values—"Good" and "Bad"—are given by the interviewer. Content analysis of the interviews revealed the major categories, classifications, and behavior expectations with regard to scientists.

The public portrait of the scientist that emerges tends to confirm the discussions by Merton (3) and Parsons (4). (a) Scientists are valued for their contribution to comfort and convenience. The large number of mentions of medical inventions indicates that he is "the modern magician, the miracle man who can do incredible things" (4, p. 340). (b) The scientists whom the subjects had in mind were overwhelmingly "applied" scientists working in the physical sciences. (c) The "miracles" of science, however, are not all credits. The connection between science, the military, overwhelming destruction, and mass anxiety appears strongly cemented. (d) Another danger is the possibility that the scientist may be treasonous. (e) A third focus of anxiety is the possibility of loss of life and property resulting from carelessness and "explosions" in the laboratory. (f) The approved scientist works in the public interest rather than being selfishly motivated. (g) The importance of valid procedures and freely publicizing research results are noted. (h) The rewards of the scientist are primarily symbolic. Higher status, fame and achievement result from good work. (i) Finally, our subjects were aware of the "communications gap" that exists between the technical competence of the scientist and the layman's understanding and approved scientific teaching that helps to narrow the chasm.

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THE CONCEPT OF PERSONAL SECURITY*

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A. THE PROBLEM

Many psychologists recently have drawn attention to the increasing use of the concept of personal security in contemporary social science, and have urged theoretical consideration and experimental investigation directed toward developing an adequate formulation of the concept.¹

The concept has been invoked in child, clinical, social, personality, educational, and industrial psychology, but often it is not clear what these psychologists mean by security, how they differentiate it from adjustment, morale, or self-development. Sometimes, too, the concept has been used interchangeably with the latter terms. There is little doubt that what some writers refer to as security or insecurity is identified by others as adjustment or maladjustment, high or low morale, and the like.

There has been a tendency on the part of some writers and investigators to interpret findings in terms of security and to draw implications from these interpretations without apparently considering it necessary to indicate what they mean by the term, or in which ways the conditions they refer to can be brought about or maintained. Plant expressed the problem:

Because the psychiatrist has found extensive elements of insecurity in large numbers of maladjusted individuals, he has generally stated that a feeling of security is necessary to mental health. But there has been no adequate statement as to what this security or belongingness is, how the individual comes to possess it, and how it can be maintained. . . . There are many adequate descriptions of insecurity and its effects. But we think security is not simply the absence of insecurity (45, p. 95).

Part of the inconsistency in definition and usage stems from the fact that

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¹Such observations have been made by Arsenian (4), Cantril (13), Horowitz (29), Plant (45), and Prichard and Ojemann (46).

the concept of personal security has entered current psychology through many sources. It has its origins in the whole range of the social and humanistic disciplines—psychology, economics, sociology, anthropology, philosophy. The intricate network of the origins of the concept of personal security includes such things as the hedonistic principle, the instincts of self-preservation and gregariousness, etc., MacDougall's self-regard and emotions of desire, the self-esteem of Bain and of James, the anxiety of Freud and also his life and death instincts, the feelings of inferiority and superiority of Adler, the introversion-extroversion of Jung and his emphasis on the future, the dynamic principles of Lewin, Murray's needs, Stern's "system of purposes," etc.—to mention but a few.

Wickert reviewed 50 complete and 23 incomplete "lists of instincts, wishes, wants, 'dependable motives,' and the like" reported by "thinkers who lived at different periods and who had different institutional backgrounds so that as much independence of thought as possible might be obtained." He found 36 references to what he treated as "security and stability—doing what is safe and conservative." To obtain this grouping, "it was necessary to take into account the differences in the meaning of the words and in the degree of generality of the ideas themselves" (58, p. 259-262).

Some indication of the newness of the concept of security in psychological thought, on the other hand, is the lack of specific treatment in the principal dictionary sources. English (22), Harriman (26), and Winn (59) do not attempt definition, and Warren includes only a definition credited to *Individual Psychology*: "a state in which conquest is guaranteed without struggle" (56).

The *Dictionary of Sociology* emphasizes the economic aspects of security: "Security—Safety, a condition of refuge, insurance against hazard. The concept is normally used in relation to economic considerations. Social security conveys the assurance of freedom from the dangers of penniless old age, unemployment without compensation, etc." (23).

Webster's definition seems more closely in line with current psychological thought: "Security: the quality or condition of being secure. Specifically, (a) the condition of being protected or not exposed to danger; safety; (b) freedom from fear, anxiety, or care; (c) freedom from uncertainty or doubt; confidence, especially well-grounded confidence; assurance." Insecurity is defined as the "want of assurance; apprehensiveness" (57).

The terms "feelings of insecurity" and "feelings of inferiority" (or inadequacy) have frequently been used interchangeably and Plant has suggested that "the original difference lies in the fact that security comes to

an individual because of *who he is*, whereas adequacy is attained through *what he is* and *what he can do* . . . problems of security are met before those of adequacy, and security is the more basic, pervasive, and 'necessary' of the two. . . . An individual might feel comfortably secure as to his part in the scheme of things, though hopelessly inadequate in every standard of attainment which either he or society might erect" (45, p. 102). He concludes that feelings of inferiority coming from repeated failure may lead to feelings of insecurity, although this is not necessarily always true.

Stroud, in commenting on this distinction, calls it "justified, if at all, only by its usefulness" (51, p. 240). He believes that insecurity and inadequacy "may be regarded as involving frustration of two qualitatively different goals: (a) achievement of emotional security through belongingness, and (b) the achievement of intellectual security through skills and work success" (51, p. 243).

In view of the overlapping between feelings of security and adequacy, both in their causes and in their symptoms, there seems to be little justification for making a sharp distinction for the purpose of the present study.

B. SOME BASIC POINTS OF AGREEMENT

Attention here will be focused on some of the principal definitions and usages of the concept of personal security to show that there is considerable agreement among many psychologists in five broad propositions, even though this agreement has been concealed beneath systematic differences and differences in choice of vocabulary.

1. Psychologists who invoke the concept of personal security today generally regard it as a dynamic concept.

2. They tend to agree that there are areas of striving within which an individual may be secure or insecure.

3. At the same time, they tend to agree that a general level of security seems to exist. This general pattern may result from the interrelated nature of the areas of personal striving, the primary importance of certain of the areas to security, generalization of security feelings, projection of security feelings from one area to another, the limiting nature of the biological structure or physical or social environment of the individual, etc.

These three propositions have been grouped together for discussion, because acceptance of personal security as a motive almost compels acceptance of the thesis that there are areas of striving or function within which individuals may be secure or insecure. For if this were not true, security would be a diffused motive without possibility of direction.

The number and nature of the areas in which individuals strive for security has been a question of considerable discussion in the literature. Freud, for example, placed major emphasis upon sexual causation in writing about the nature of anxiety (24). Adler, in contrast, observed that "the sexual components cannot even be correctly estimated except in relation to the individual's style of life" (1, p. 93).

Adler held that there are three problems of life—society, occupation, and love—"which must be solved somehow or other by every human being, for the individual's relations with the world is a threefold relation. No one can escape a definite answer to the question of society, or of occupation, or of sex. And whoever can make friends with society, can pursue a useful occupation with faith and courage, and can adjust his sexual life in accordance with good social feeling, is immune from neurotic infection. But when an individual fails to square himself with one or more of these three inexorable demands, beware of feelings of abasement, beware of consequent neurosis" (1, p. 63).²

While agreeing with Adler that it is important to consider an individual's "style of life" and the way he meets social, sexual, and occupational problems, many psychologists would go further in suggesting that there are any number of other areas in which individuals may feel secure or insecure. Some of these areas may be common to all people; others may be personal and unique.

Psychologists today generally recognize that the behavior of individuals is motivated by their feelings of insecurity or by their desires for security. Arsenian has observed that they "have invoked the concept of security almost as often as that of adjustment, conceiving security as a necessary condition for 'good adjustment' and correlating insecurity with a state of high tension that gives rise to some form of tension-reducing activity. Here the concept of security is the core of a theory of action: security becomes a motive whether one chooses to regard the organism as striving to attain security or struggling to allay the tensions attached to insecurity, environmental or intra-personal" (4, p. 225).

Shaffer (48, p. 106) treats security as a "need or urge"; Bird (5, pp. 52-53) as a "drive"; Doob (20, pp. 132-133) as a "goal"; Carroll (16, Ch. 3) as a "need"; Wickert (58) as a "personal goal-value"; Woodruff (60) as a "value"; Kornhauser (33, p. 217) as a "leading motive" in our culture, etc.

Horowitz was among the first to urge a functional approach to the de-

²The reader is referred to Sherif and Cantril (49, ch. 15) for a critical evaluation of the assumptions of underlying Freudian and Neo-Freudian theory.

velopment of an adequate theory of security. He and Andrus (3) found that classifying children as secure or insecure on the basis of ratings on the presence or absence of symptoms of security or insecurity was essentially unsound because it did not get at past experiences or motivations. This finding clearly pointed to the need for recognizing that "security-insecurity is a function of the interaction of the individual and the environment" (29, p. 434).

He called attention to the fact that "in listings of causes of insecurity we may find such functionally unrelated suggestions as reflections of parents' feelings of insecurity, belittling of accomplishments, mental inferiority. Symptoms of insecurity may be described as having tantrums, bullying, scowling, sulking, day-dreaming, reading. These suggestions . . . give an idea of the range of phenomena grouped together . . ." (29, p. 422).

The theory he offers as an alternative to this structural approach recognizes "regions," with more or less precise boundaries and also higher order units or "areas" which "consist of a number of functionally related regions." For example, for children, blocks or horses might be considered "regions" within the "area" of physical activity, etc. While recognizing that individuals may be secure or insecure within these functional areas, he would retain the concept of general level of security as also useful, since "uniformities reflecting similarities of biological organization and . . . the prevailing culture patterns may exist," and "there is a tendency for generalization of security feelings . . . beyond the regions where they may originate" (29, p. 428).

L. B. Murphy has further suggested that it may be useful to consider personal security both in terms of "*content*," the materials with which one feels secure, and "*form*," the pattern of approach or manipulation which serves as a source of security (43, p. 425). From this point of view, a child's familiar toys may be one source of security, and his well-organized routine of life another.

Gardner Murphy agrees quite closely with Horowitz and Lois Murphy:

Throughout childhood, not only is there a general security level, but there are also areas of security so well defined that the little child may change, chameleon-like, from shy to resolute as he moves from the strangeness of his first day at nursery school to the familiarity of his old neighborhood situation. However, this is not true of all individuals. . . . The kind of unity that Adler describes here does exist, but it does not take into account the full biosocial unity that has been developing in a complex environment (42, p. 578).

Security areas may be easily discovered in the nervous child, but the process may be very difficult in the confirmed adult neurotic. In theory,

such areas always exist, no matter how perfect the mask, and when discovered, they can be broadened and redefined so that the patient can undertake more and more each day, and find more and more real satisfaction in his actual achievements (42, p. 583).

Maslow's emphasis in treating the concept of security has been on the total personality, rather than on the functional areas, and in this way he differs considerably from Horowitz and the two Murphys. His clinical approach has led to the formulation of a "dynamic theory of security-insecurity" patterned along the lines of *Individual Psychology*. According to him:

Security feelings are a syndrome. That is, the name "security" is a generalized label for many more specific feelings which overlap and intertwine, and which are all functions of one another. Because of this common character, we may group them together and consider them in their "wholeness," in their unitary rather than in their diverse qualities (39, p. 331).

Maslow is aware that most people "can be seen as secure and insecure" as shown in studies of areas of security (39, p. 333), but his conceptual framework does not lend itself to analysis along these lines. His approach yields instead what he terms a "static description" of security in general.

An insecure person is described in terms of a number of "sub-syndromes" disclosed in clinical investigation and analysis as one "who feels unconsciously rejected and consciously unhappy, unstable and conflicted, who perceives the world and the people in it as dangerous to him, who reacts to these conscious and unconscious feelings by attempting to win back security in various ways, but who by the very reason that he attempts to win it back, guarantees its perpetuation or even intensification, unless some 'good' external influence intervenes into the vicious circle to put him on the correct path" (39, p. 344).

From this static or structural description, he seeks to determine the underlying dynamics. "To each of the states of mind or feelings or impulses, or behaviors that we have described, there is always a reaction, a drive, a motivation which sets the process going. . . . These 'feelings' are also 'motives' at one and the same time" (39, p. 336).

The static description itself, however useful in measuring the level of security, provides few, if any clues to the reasons the insecure person feels rejected, dissatisfied, or unhappy. Questions designed to yield a description in terms of syndromes and sub-syndromes are of little use in any attempt to describe the feelings of security as related to personal or social goals, group

relationships, etc. Hoppock concluded on the basis of his studies of job satisfaction that: "The real determinant is the security the worker feels, rather than the security that actually exists" (27, p. 282).

Cantril regards security as a necessary motive until a certain minimum level of security in any particular area of striving is attained. He raises this point with particular reference to the physical requirements of the individual, and draws attention to the manner in which shifts in security motivation occur:

The unique pattern of man's growth constantly jeopardizes his physical security, forcing him into a conflict, a choice-situation. I submit that one of the most common denominators that runs through all of man's choices is the conflict between what we may call "security" in the sense of physical well-being on the one hand, and "development" on the other. "Development" in the sense I am using it includes the attainment of security in social life, the pursuit of knowledge and all cultural activities. For the desire for improvement in a direction requires first of all that the organism have physical well-being, security. In terms of the way "security" is obtained in our culture today, this means a secure job, a decent standard of living, health and old age benefits, etc. (14, p. 2).

He suggests that:

What different people will regard as "security" will vary enormously according to immediate circumstances, acquired standards, group loyalties, expectancies for the future, etc. The Chinese coolie, the inmate of a concentration camp, the guerilla soldier, the Southern sharecropper, the successful farmer, the young professional man, the wealthy industrialist will all define "security" relative to their own backgrounds, group relationships, immediate situations, etc. (12, pp. 9-10).

In this discussion and elsewhere (7, 8, 10, 49), Cantril has emphasized the tremendous rôle subjective economic security plays, and has shown how feelings of economic insecurity spread throughout many other areas of striving and may very well result in the breakdown of the ego itself.

Any number of psychologists and other social scientists have pointed out that particular areas of motivation, such as the economic or the sexual area, are so important that frustrations or deprivations within these areas lead to maladjustment of the entire personality. Investigations have shown that during periods of severe economic or physical hardship, people lose confidence in their abilities, lose their feelings of belongingness and status, and at times even give up hope in the possibility of ever regaining these things.

Reinhardt and Boardman summarized the nature of the economic influence upon security in other areas very nicely on the basis of their 1933 findings:

Since the personalities of these cases were integrated around certain values expressed in terms of radios, automobiles, furniture, vacations, occupations, incomes, and friends, and since security of mutual friendships depended largely upon the continuance of the other complex of values, it seems plain that the readjustment and restoration of the personality was possible only through a redefinition of the whole situation. So long as these definitions of value remained, the only thing that held the personality together was hope. And when that was gone, the personality went (47, pp. 248-249).

Conclusions such as this and other investigations reported in greater length by Sherif and Cantril (49, ch. 12) have been drawn from investigations of people during the depression, periods of unemployment and starvation, imprisonment, war, etc. Less work has been done concerning the effect economic and physical security have on feelings of status, belongingness, surety, hope, and the like insofar as normal employed people are concerned, as suggested by Cantril (6, p. 317 ff.).

Diserens and Wood come close to this in presenting their behavioral theory of security, but they may not give as much consideration as desired to a wide range of subjective factors such as one's own economic status relative to that of others and relative to his previous and aspired-to situation:

There seems no reason why psychologists should not recognize a general sense of security as a more or less developed primitive character of life at every level of organic development, a characteristic arising in the first place out of the purely physical conditions of equilibrium. The sense of security would then be in the first place a kind of organic resonance and psychic sign corresponding to the preservation of a satisfying balance of organic forces. It would be the psychic counterpart of what Cannon calls "homeostasis," or the balance of regulatory activities. In the animal world this sense of security may well be described as economic, since it is entirely a function of the adaptive distribution and conservation of the animal energies—a purely economic task. When a certain degree of regulation of the *external world* is added to the inner homeostasis, the sense of security expands to include the latter. With the advent of man . . . the general sense of security, differentiated into a number of modes, corresponds to the several grand spheres of interests and relationships set up in the physical and social world.

These modes, however, are all outgrowths of the original feeling of economic security leading to many additional mechanisms to attain the one great economic end of survival. It is at this stage that the concept of economic security, as distinct from the mere sense, feeling or awareness, may be said to have been born, behavioristically rather than by the conscious steps of concept formation described in treatises of formal logic. This behavioristic concept of security represented an

implicit plan of action to maintain the feelings on which it was based. It is really a later stage of homeostasis. Man acted as if economic security was his principal and final aim before he formulated the concept consciously. Indeed, it remained for the 19th century and Karl Marx to do that (18, pp. 357-358).

4. An individual's feelings of security within any area of striving involve his own subjective evaluation of his success, satisfaction, and surety with respect to the carrying out of his purposes in past and present situations and group relationships, and, also, with respect to his expectations about the carrying out of his purposes and aspirations in future situations and group relationships.

Questions relative to feelings of success, satisfactions, and surety have become standard in personality questionnaires and inventories, and some questions touching upon feelings relative to past, present, and future situations and group relationships have been used. These questions have been formulated to obtain responses either within a general frame of reference (Does life usually look entirely hopeless?) or within the frame of reference of some specific situation or functional area (Has lack of money tended to make home unhappy for you?). Such questions have also been included in questionnaires used in the study of worker or civilian morale. No single questionnaire or inventory reviewed by the writer, however, has been limited to questions of the latter type and within the framework suggested by the hypothesis formulated above.

A number of psychologists seem to agree on the general tenor of the above proposition, although they differ in their points of emphasis and in their terminology.

Maslow, for example, includes items such as the following among his "sub-aspects or sub-syndromes" of security:

"Tendency to be happy or content."

"Feeling of being liked or loved, of acceptance, of being looked upon with warmth."

"Tendency to expect good to happen, general optimism."

"Feelings of belonging, of being at home in the world, of having a place in the group, etc."

In his *Security-Insecurity Inventory*, Maslow does not attempt to establish a frame of reference within any specific functional area. Most of his questions are general, rather than applying to any particular area of striving or any personal or social purpose:

"Are you in general a happy person?"

"Do you tend to be dissatisfied with yourself?"

The result, as he has indicated, is a structural or "static description" of the individual's general level of security-insecurity in terms of symptoms rather than motives (39).

Kornhouser, in discussing a single functional area—subjective economic security—shows the interrelated nature of these aspects very clearly:

Partly a depression phenomena, the widespread problem of economic insecurity is nevertheless now generally recognized as a serious source of personal maladjustment and unrest at all times. . . . It is altogether conceivable that subjective insecurity feelings may be greater in sections of the population which are objectively far more secure than others. This is true simply because the feelings are determined so largely by expectations, by beliefs about present status and alternative modes of life, by the vividness with which future dangers are anticipated, and even by remnants of deep-seated fears rooted in early life history remote from the present circumstances (33, p. 225).

Some psychologists emphasize certain other aspects of security. Plant, for one, tends to identify security with belongingness. "Indeed, the word 'belongingness' would be better than 'security' were its negative as easy of expression as 'insecurity'" (45, p. 96).

Views similar to this are frequently expressed in the literature of child development and psychiatry (2, 16, 52).

Hyman, in his study of status, drew attention to this aspect of security feelings:

Statuses operate with other variables to determine feelings of security. Low status may act as a potent source of insecurity feelings and high status may serve various ego needs. When a given status no longer serves a function in the personality, it may lose importance or vanish. Such dynamic tendencies may be offset by a number of factors. For example, (a) Low status may not correspond with inferiority feelings if the subject interprets such status as a consequence of social dislocation rather than personal inadequacy. (b) Low status may not serve to produce inferiority if the reference group has the same status and there is consequently little opportunity for individual comparison. (c) Low status may not be associated with much effect if the dimension of experience is not valued by the subject (30, p. 30).

Murphy suggested that "the common run of mortals in a competitive society can achieve . . . personal adequacy only by securing a *place*, a *name*, a *status* in their group" (42, p. 576). In discussing the "liabilities of western society," he observed that "there is scarcely any doubt that the most serious frustration of human needs will be found in the field of security needs. Here are included economic security, and uncertainty as to affec-

tion, status, prestige—all that goes with the whirling pattern of change with which we are confronted. The worst phase of insecurity is ego strain. Even if the society gives the individual prestige and status, he does not know how long he can retain it. . . . This pathological insecurity is accompanied by relative loss of "group identification" (42, p. 908).

Sherif and Cantril (49) have cited a wealth of evidence that individuals strive for group acceptance and group status, and have shown how adjustment and security feelings are dependent on the attainment of a sense of belongingness and status. Changes in group relationships which accompany individual growth and development; family hardships; periods of stress, unemployment, or deprivation; political, economic, and technological changes, etc., make for personal insecurity. Cantril (7, 9) has shown that feelings of insecurity, in turn, may make people more susceptible to suggestion and more likely to behave in an irrational or panicky manner in an uncertain or threatening situation.

Dollard, in his discussion of the problem of security, has emphasized feelings of status, childhood experiences, and expectancies.

A sense of security is a kind of prophecy concerning the future. The world around us gives or deprives us to a good extent of these feelings of security. If the signs are good, we tend to relax and rest; if the signs are bad, we become tense and miserable (19, p. 134).

Many investigations relating to success, satisfaction, and surety with respect to the carrying out of future purposes have been published in recent years as studies of the level of "aspiration." They have emphasized the interrelation between aspiration and achievement levels and security feelings (10, 29, 36, 37, 55).

More recently, Cantril has called attention to the interrelationship between perception, expectancy, and actions directed toward the carrying out of purposes, and has suggested that these are closely related to our feelings of security and insecurity.

Practically all of our value-judgments take place within a context of expectancy. We can regard expectancy as a psychological co-product of our thinking about the future in terms of how our purposes will be affected if we do or don't do certain things now. Expectancy is therefore tied to both purpose and perception (12, p. 58).

He has emphasized the influence of past experience upon perception which he has tentatively defined as "an implicit awareness of the probable consequence an action might have for us with respect to carrying out some purpose which might have value for us."

. . . It follows that what we have in mind or what we perceive "now" is almost invariably related to our expectancies for the future, whether this future is the probable consequences of our actions within the next fraction of a second or the probable consequences that our actions of the "now" may have for us twenty years hence. . . .

Action, purpose, and expectancy are, then, all intimately tied to each other as factors involved in perception. When they are tied together, it becomes a relatively easy matter to account for the feeling of surety or lack of surety which accompanies perception. We experience a sense of surety in our perceptions if they have in the past proved to be reliable guides to purposive action. . . . On the other hand we experience a feeling of insecurity, an overtone of anxiety when we are able to make only a low prognosis of the probable consequences of our future actions with respect to carrying out a purpose . . . (or) when conflicting cues are introduced in the weighing process (15, pp. 145-146).

5. Feelings of security within any functional area vary in a continuum, so that security status within any area of striving or within any situation may be considered a matter of degree rather than a matter of absolutes.

The above proposition appears to be a point in some disagreement with Maslow taking the view that there are variations in insecurity but that security itself is an absolute.

It is not correct to imply that security-insecurity is a continuum. The truth of the matter is that while there is only one kind of security, there are many kinds of insecurity. These types of insecurity have a great deal in common, it is true, but they are also in certain respects different from one another. One insecure individual may solve his problems generally by withdrawing, another by over-aggressiveness, another by ingratiation, etc. If we have to express these graphically by drawing a picture, we should not use a straight line, but rather a figure like a tree, that is, a straight line with branches at the other end (39, pp. 333-334).

It appears that Maslow here is speaking of symptoms, rather than the subjective states of security and insecurity. His conclusions seem to derive from structural rather than dynamic analysis. To accept his position on this issue would tend to compel one either to overlook unique areas of insecurity present in persons who appear otherwise very secure, or to accept the position that we are all insecure.

Horowitz, in contrast, has suggested that "security-insecurity is a qualitative frame of reference within which the positive and negative balances, the foci of attractions and repulsions which determine behavior in a given

situation are developed." Both security and insecurity are developed "subjectively, in relation to the particular total situation rather than in absolute and invariable terms" (29, pp. 422-423). "Security may be conceived as a 'permissive' not a 'mandatory' status, and insecurity as a 'limiting' status."

C. POSITION OF REPRESENTATIVES OF THE OTHER SOCIAL DISCIPLINES

Thomas and Znaneicki have treated security as a general motive in a manner that has had a good deal of acceptance among sociologists and some of the social psychologists. Throughout their major work, they have emphasized the need for taking into account the individual's own subjective view in attempting to explain his reaction to a situation. They include the desire for security among the individual's four general patterns of wishes "which can be satisfied only by his incorporation in a society" (54, p. 73). In a later and fuller discussion, Thomas suggested that "the desire for security is opposed to the desire for new experience (which is) emotionally related to anger, which tends to invite death, and expresses itself in courage, advance, attack, pursuit." "The desire for security, on the other hand, is based on fear, which tends to avoid death and expresses itself in timidity, avoidance, and flight. The individual dominated by it is cautious, conservative, and apprehensive, tending also to regular habits, systematic work, and the accumulation of property" (53, pp. 395-398).

Sullivan, in discussing the psychiatric aspects of morals, has drawn attention to the manner in which one's beliefs, convictions, satisfactions, and understanding are related to security feelings.

It seems that people become acutely demoralized under circumstances in which an implicitly trusted universe collapses; when an elaborate complex of interlocking and mutually supporting and dependent beliefs, convictions, faiths, and so on, suddenly proves to be built entirely on figments of self deception. An event suddenly shows that the universe does not make sense and one finds one's self badly demoralized.

Acute demoralization also appears when any grave threat of insecurity or cutting off all of one's satisfactions is perceived under circumstances which prohibit rational analysis and the synthesis of that wonderful thing which we call understanding of what has happened. . . . It gives one a great feeling of security to "understand" . . .

Demoralization of the chronic type appears when people become convinced that they cannot improve a situation of insecurity or dissatisfaction, or much more commonly, when they observe that they cannot prevent other people from making their situation worse. Thus a person who finds himself in the clutches of hostile people who have already deprived him of the feeling of personal security and are cutting off his

channels of satisfaction, when he finds that he cannot do anything to prevent their continuing to do this, rapidly becomes demoralized (52, p. 282).

The anthropologist Mead has emphasized the cultural influence upon the patterns security may take in different societies:

By a sense of security I mean an individual's freedom to act in human situations without fear or uncertainty, with a sure sense of an unthreatened place in the world in which he lives. The way in which such a sense of security is related to the strength or weakness of the ego seems almost entirely a function of the social system within which the characters are formed. It depends upon whether individual security is based on achievement measured against the achievement of others, or whether it is phrased in quite different terms; it also depends upon the presence and vividness of warm libidinal ties (41, p. 485).

Mead points out that "the factors on which security depends in any given culture may well be inextricably linked to the problem of competition and coöperation." Among the Arapash, the need for security is linked to being helpful to others, and becomes "the principal social drive"; whereas "among the Ojebwa, . . . the individual has no sense of security unless he is convinced of his own unchallenged superiority" (41, p. 489).

Other cultural patterns which are pointed out to be linked to individual feelings of security include "the importance of the individual's relation to the immediate kin group," which vary according to the possibilities for developing such relations; "the religious view of the universe"; "the nature of the internal sanctions"; and "the attitude toward children and toward the aged" (41, p. 488).

The philosopher Dunham has recently taken strong issue with Langmuir, Carmichael, and others who have argued with respect to economic security that to be secure is to lack incentive, and that security is therefore a static condition. Dunham points out that:

The supposed conflict between security and incentive vanishes the moment we realize that *security is itself an incentive*. To be secure is to be protected against everything which can threaten one's economic position, one's life, one's prospects for happiness. To be secure is to know that one shares fully in the goods and services one has helped to produce, that one labors today without danger of unemployment tomorrow, that one can keep one's family and one's friendships inviolate, that one can look toward old age free from poverty and degradation. All these goals serve as very powerful incentives; indeed, they are what people really want, so far as wants are normal. . . .

In the second place, security is not a static condition which, when we

attain it, leaves us nothing more to do. On the contrary, security has to be maintained in existence by the united labor of the whole society. . . .

If security is itself an incentive, and if security is a condition which has to be maintained, then it follows that we can work to achieve it, and on achieving it, can work to keep it in existence (21, pp. 307-308).

Recently, Condon, in the course of a brilliant evaluation of the concept of security with particular reference to military security and the security of information in an atomic age, emphasized the interdependence between individual security and group security:

Let me return briefly to "security" in its more general and civilian sense: "freedom from fear, anxiety, or care; confidence of power or safety." What a splendid thing is security, and how eagerly do all human beings crave it! Considering that every kind of human maladjustment, be it real or arising from erroneous beliefs or misinformation, gives rise to fear, anxiety, or care, we see that nearly all human difficulties could be resolved if we would only find out how to achieve security.

Kinds of security are best classified in terms of the kinds of insecurity which deprive us of feeling secure. These may be grouped into four main headings: (a) anxiety of the individual concerning his place within the social groups to which he belongs; (b) anxiety of minority groups concerning their place in the national community; (c) anxiety of the national community as a whole concerning avoidance of economic depression; and (d) anxiety of the national community concerning avoidance of war with other such groups.

All of these are very real, often bitterly tragic anxieties. Perhaps the most bitter and the most compelling one now is the last—in a period which has seen two major wars and scores of so-called "minor" wars in less than half a century. This anxiety today weighs down every civilized human being in the world; it is this anxiety beside which all others seem trivial (17, pp. 664-665).

Fromm (25), Horney (28), Kardiner (32), Lasswell (34), and others stemming from the psycho-analytical school have more frequently invoked the concept of insecurity than that of security. Many of the points they make are similar to those expressed above in the form of propositions. Their theories of personality and social change involve assumptions that are more fully described by Sherif and Cantril (49, Ch. 15).

D. SUMMARY

A review was made of the definitions and usages given to the concept of personal security by many psychologists and other social scientists who have invoked this concept in recent years. In spite of wide variation in systematic

treatment and terminology, a nucleus of agreement was found: It is possible that no one of the scientists whose viewpoints were presented would agree fully with all the propositions. Nevertheless, there appears to be sufficient agreement among them to warrant tentative acceptance of the following concept of personal security as a framework for investigation:

Personal security is a "dynamic" concept. People seek security within their various areas of striving: by achieving it, they become secure in some areas; by failing to achieve it, they become insecure in other areas. The areas of personal striving are interrelated and overlapping, and some may be of greater importance than others to the security of an individual. Feelings of security or insecurity may tend to become generalized throughout the personality structure, or they may be projected from one area of striving into others. Furthermore, the biological structure or physical or social environment of an individual, by limiting or influencing the character and direction of his motivations, may have a direct bearing upon the nature of his securities. In view of these conditions or possibilities, there appears to be a general level or status of security, as well as levels of security within the individual areas of striving.

A person's feelings of security or insecurity within any area of striving involve his own subjective evaluation of his success, satisfaction, and surety or confidence with respect to the carrying out of his purposes in past and present situations and group relationships; also, with respect to his expectations, hopes, fears, or uncertainties about the carrying out of his purposes and aspirations in future situations and group relationships.

Feelings of security within any functional area vary on a continuum, so that security status within any area of striving or within any situation may be considered a matter of degree rather than a matter of absolute.

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STUDIES IN STEREOTYPES: III. ARAB STUDENTS IN THE NEAR EAST*

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A. THE PROBLEM

In spite of the keen interest which social psychologists have shown in the causes for tensions among nations, there has been a dearth of investigations which might throw some light on the area. Klineberg's survey (3) of research in this field pointed up some of the serious gaps in our knowledge, and Cartwright's review (1) of that work has specifically called attention to the need for cross-cultural studies of stereotypes. Investigations of stereotypes in the Near East are undoubtedly valuable in their own right (as, for example, a technique for determining the impression which Americans have made in this part of the world), but they are of considerably greater value when they lend themselves to comparison with studies in other nations. Consequently this study has been modeled as closely as possible on that of the well-known Katz and Braly study (2) of Princeton students, with a view to making comparisons possible.

B. SUBJECTS

Subjects were 100 Sophomore students at the American University of Beirut. All were male students taking their first course in psychology. Fifty-two were Christian (Greek Orthodox, Maronite, Gregorian, Protestant, and Roman Catholic); 45 were Moslem (Sunnite, Shi'ite, and Druze); two were Jewish; one listed "no religion." Distribution with respect to nationality was as follows: Lebanese, 34; Palestinian, 28; Syrian, 16; Iraqi, 11; Jordanian, 7; "Arab," 2; Egyptian, 1; Sudanese, 1. The two respondents who listed "Arab" as their nationality may be members of the Pan-Arab movement, which asserts that all Arabs constitute a single nation. Actually all of our subjects speak Arabic as their first language, and consider themselves Arabs. Both national and religious distribution resembled that in the University as a whole.

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C. PROCEDURE

The procedure of Katz and Braly was followed as closely as possible. First a list of adjectives was prepared by having a group of 15 students set down in Arabic as many adjectives as they thought might be needed to characterize the 13 groups under consideration. The list was edited somewhat to eliminate synonyms and lengthy descriptive phrases, and finally consisted of 99 adjectives. A mimeographed questionnaire was then prepared of which page one was the list of adjectives arranged alphabetically. The other pages requested the subjects to select from page one as many words as seemed necessary to characterize each of these groups: Germans, Italians, Negroes, Irish, English, Jews, Americans, Chinese, Japanese, Turks, Russians, French, Lebanese. Subjects were permitted to add words of their own choosing if the list on page one seemed insufficient. Directions on the last page instructed the students to go back over their characterizations and select five words which seemed most typical of each group. The five words so selected were the only ones used in the tabulations.

The entire questionnaire was in Arabic. It was administered by the junior author, a Palestinian Armenian, and no other persons were present during the session.

D. RESULTS

Table 1 presents the 10 adjectives most frequently assigned to each of the 13 national groups. We have attempted to translate each of the Arabic words in a fashion that would capture its full implication.¹ In some instances this has not been possible. The word "*'abd*" which we have translated as "enslaved" also means "black" in some parts of the Arab world, so one must interpret with caution the use of this word in describing Negroes.

The Germans are described by our students as militaristic, clever, strong, and scientific. This is similar to the stereotype held by Americans, except that Americans did not use the adjective "militaristic" in 1933, and the Arabs do not think of Germans as "stolid" or "methodical."

The stereotype of the Italians holds them to be, above all else, artistic and musical. To a lesser degree they are pictured as emotional and weak. The similarity between that picture and the artistic, impulsive, quick-tempered, musical person pictured by Americans is extremely close.

The stereotype of the Negro, which presents him as ignorant, simple, and

¹We wish to express our appreciation to Professor Habib Kurani and Mr. Munah Khouri for their advice and assistance in both Arabic-English and English-Arabic translation.

TABLE 1
TEN TRAITS MOST FREQUENTLY ASSIGNED BY 100 STUDENTS OF THE NEAR EAST
(Numbers indicate number of students encircling each adjective)

<i>Germans</i>		<i>Italians</i>		<i>Negroes</i>	
militaristic	44	artistic	64	enslaved	18
clever	43	musical	56	ignorant	45
strong	34	emotional	21	simple	39
doctrinaire	30	weak	19	superstitious	29
scientific	29	mercantile	16	poor	28
industrious	27	base	16	backward	25
strong-willed	25	sociable	15	lazy	22
courageous	24	imaginative	14	down-trodden	20
nationalistic	20	fickle	13	feel inferior	18
musical	16	industrious	11	silly	16
<i>Irish</i>		<i>English</i>		<i>Jews</i>	
stingy	42	political	64	base	58
nationalistic	27	shrewd	36	stingy	48
religious	18	clever	30	deceitful	38
conservative	17	egoistic	27	rich	33
revolutionary	17	conservative	27	materialistic	27
peaceful	13	silly	20	mean	21
aloof	12	democratic	19	progressive	20
materialistic	11	deceitful	17	treacherous	15
dogmatic	11	disciplined	13	criminalistic	13
strong	11	responsible	12	down-trodden	13
<i>Americans</i>		<i>Chinese</i>		<i>Japanese</i>	
rich	54	poor	33	self-sacrificing	55
industrial	35	backward	30	industrial	30
democratic	35	ignorant	29	strong	30
materialistic	23	superstitious	27	militaristic	28
mercantile	19	simple	20	courageous	24
practical	18	nationalistic	15	nationalistic	21
progressive	14	conservative	12	strong-willed	16
base	12	patient	12	mercantile	15
humanitarian	12	clever	11	imaginative	15
sportsmanlike	11	religious	10	principled	13
<i>Turks</i>		<i>Russians</i>		<i>French</i>	
strong	36	doctrinaire	40	nervous	26
militaristic	33	strong	27	emotional	25
nationalistic	33	revolutionary	26	base	19
courageous	31	militaristic	23	revolutionary	19
progressive	18	aloof	21	sociable	18
arrogant	17	progressive	18	egoistic	16
dogmatic	13	practical	16	fun-loving	15
oppressive	13	courageous	14	adaptable	14
subservient	13	enigmatic	13	deceitful	13
egoistic	11	nationalistic	12	spontaneous	13
		<i>Lebanese</i>			
		sectarian	48		
		mercantile	28		
		materialistic	24		
		clever	21		
		imitative	16		
		egoistic	14		
		dogmatic	13		
		sociable	13		
		adaptable	13		
		hospitable	13		

superstitious, is also notably similar to the American stereotype. The principal differences between the Arab and American stereotypes are that the former group consider him to be down-trodden and to suffer from feelings of inferiority and the latter group thinks of him as happy-go-lucky.

Our subjects did not have a very clear picture of the Irish. Interviews held with some of the students suggested that there was some tendency to confuse them with the Scots. In any event, the Irish were called "stingy" more often than they were called anything else. Next in frequency of occurrence were "religious" and "nationalistic," which are also found in the American stereotype. Seventeen subjects thought of them as conservative and an equal number, as revolutionary. The total picture is neither clear nor consistent.

The Arab students think of the English as shrewd politicians who are clever and egoistical. This stereotype is that of an imperialistic foreign service officer, while that of the Princeton students has been labeled "the English gentleman." The less prominent features of the local stereotype, however, are compatible with the views of the Princeton students: conservative, disciplined, responsible.

The stereotype of the Jew is generally unfavorable, and seems to be composed of three main elements or groups of similar traits. The strongest of these with respect to frequency of occurrence is the group including "base," "deceitful," "mean," and "treacherous." In the American stereotype, the adjective "sly" was selected by one-fifth of the subjects, but otherwise this picture of the Jew was not presented. The second group of traits includes "stingy," "rich," and "materialistic." It was paralleled in the American stereotype by the adjectives "mercenary" and "grasping." The third group of traits constitute the favorable side of the picture: "progressive," "down-trodden," and (in eleventh place) "energetic." This cluster is fairly similar to the American-assigned traits of "industrious," "ambitious," and "persistent." It should be noted that the traits "loyal to family ties," "talkative," and "very religious" were assigned by the American students but not by our subjects.

The stereotype of Americans held by our subjects was one which Americans themselves might recognize. Yet the greatest agreement was on the term "rich," which was not mentioned by the Princeton students. The American students thought of Americans as intelligent and alert, but the Arabs did not remark on any traits which might imply such characteristics. Otherwise, however, there was similarity between the Arab and American view of Americans.

The Chinese stereotype is poorly defined among our students, and is quite similar to their stereotype of Negroes. It agrees with the American picture only in assignment of the traits "superstitious," "ignorant," and "patient."

Our students hold a very favorable picture of the Japanese, and note especially frequently that he is of a "self-sacrificing" nature. Their stereotype is quite different from that held by Americans.

The stereotype of the Turk is of a strong, nationalistic, courageous people who are arrogant, dogmatic, and oppressive. The picture contains admiration mixed with resentment. The stereotype is quite different from that found by Katz and Braly, but it should be noted that their students agreed less on Turks than on any other group.

There was among our students rather little agreement on the characteristics of the French. So far as there was a picture, however, it was of a nervous, emotional, fun-loving people who were egoistic and deceitful. The Katz and Braly study did not include the French among the groups to be described.

The Russians are seen as doctrinaire, strong, revolutionary, and militaristic. The Lebanese are seen as sectarian, mercantile, and materialistic. On neither of these groups do we have comparable data regarding American stereotypes.

The extent of the agreement on the traits present in each stereotype is shown in Table 2. We have followed the classical technique for determining the definiteness of stereotypes—counting the least number of traits that would need to be included to encompass half of the 500 nominations. The numbers in parenthesis are those from the Katz and Braly study. It can

TABLE 2
DEFINITENESS OF STEREOTYPES

National group	No. of traits*
Jews	7.3 (5.5)
Negroes	7.8 (4.6)
Germans	7.8 (5.0)
English	8.8 (7.0)
Japanese	10.3 (10.9)
Italians	10.5 (6.9)
Americans	11.6 (8.8)
Turks	13.5 (5.9)
Russians	13.8
Lebanese	14.0
French	16.3
Chinese	17.0 (12.0)
Irish	19.7 (8.5)

*Numbers indicate the least number of traits required to include half of all possible traits assigned to each national group. Numbers in parentheses are from the Katz and Braly study, and are presented for comparison.

be seen that stereotypes are much less definite in the Near East than in America. It should be noted, however, that in both samples the stereotype of Jews, Negroes, and Germans are most definite and those of Turks and Chinese quite indefinite.

E. DISCUSSION

In view of the fact that our subjects are enrolled in a university which bears the name "American," one may wonder whether the content of the stereotypes has been derived from American professors. Although an adequate answer to the problem of derivation of stereotypes must await further investigation, we do not believe that the subjects obtained their ideas from those of Americans. A vast majority of the faculty members at this university are Arabs. Moreover, the American members of the faculty are persons interested in foreign teaching or research, and could be expected to be dominated less by stereotypes than would be average American. Of our subjects, 17 entered the university this year as Sophomores, and the remaining 83 had their Freshman year here. During their Freshman year, however, all courses except the one in English were taught by Arabs. The fact that our subjects had rather favorable stereotypes of Russians, Germans, and Japanese would support the view that the stereotypes were not taken over from Americans. Definitive answers to this question, however, are not now available.

Our results suggest the possibility that some stereotypes may be extremely widespread through the civilized world. Although generalizations about national groups do not have validity, they nevertheless must be recognized as "psychological realities." It seems probable that generally-held stereotypes would affect the social behavior of the stereotyped group. Thus an American might find it difficult to play the rôle of a poverty-ridden idealist in a world that assumes him to be a wealthy materialist. Much of the content of the stereotypes of the following groups is quite similar among university students in Princeton and in Beirut: Germans, Italians, Negroes, Americans, Jews, and English.

There was also considerable similarity with respect to definiteness of stereotypes in the two samples. If we arrange the 10 nationalities studied in both investigations in order of definiteness of stereotype, then the rank order coefficient of correlation for the two samples is 0.73. Apparently some groups are more easily stereotyped than others.

Katz and Braly pointed out that definiteness of stereotype in their study was not related to the degree of prejudice. Our results seem to bear this

out. The Jews are the most definitely typed, and they are also the least popular group. On the other hand, the French stereotype is lacking in definiteness although only one month before our data were gathered there had^o been a general strike of all Beirut college and university students protesting the French treatment of Moroccan Arabs, and the strike had ended in a march on the French legation and the defacing of a French monument.

Our students' stereotype of the Lebanese is of intermediate definiteness, just as was the Americans' stereotype of Americans.^o It is clear that familiarity is not the basic factor making for definiteness of stereotype.

F. SUMMARY

o We have examined the stereotypes which 100 college students of the Near East have of 13 national groups, and have compared the stereotypes with those held by college students in America. There was considerable similarity between the two groups in content of the stereotypes of Germans, Italians, Negroes, Americans, Jews, and English. The stereotypes of the Arab students were less clearly defined than those of the American students, but there was considerable similarity between the two samples with respect to definiteness of stereotype. First, both samples had clearer stereotypes of Negroes, Jews, and Germans than of any other groups. Then, both had a clear stereotype of one group against which there is much unfavorable feeling and an indefinite stereotype of another group which was in disfavor. Finally, each had of the nation with which it was most familiar a stereotype of intermediate definiteness.

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SOCIAL AND PSYCHOLOGICAL FACTORS IN HUMAN PROCREATION: A SURVEY APPROACH*

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A. INTRODUCTION

In all animal life below man the motivation underlying procreation appears to be innate, determined by impelling forces within the organism. That man himself is a unique exception can at least be doubted. Certainly it is puzzling that in various areas of the world where conditions for survival are extremely poor we find some of the largest populations and the highest birth rates. In considering only these instances one might readily suspect the existence of some deep-lying and inexorable instigation toward reproduction; a force apparently little influenced by the hazards of the environment. Even in our own society (U. S. A.) something of the same obstinacy obtains, for it is widely observed that the members of our society in the most precarious of economic circumstances procreate at the highest rate of all strata, with apparent disregard of the consequences both to themselves and to their offspring. Men concerned with the ills of ours and the future world have predicted both ultimate overpopulation and a degeneration in the quality of mankind as the end result of such tendencies.

In consideration of still other facts, however, namely the failure of groups of persons at the highest levels of cultural and intellectual attainment to multiply or even reproduce themselves, it becomes obvious that purely acquired attitudes and motives of some kind, and themselves incompatible with procreative tendencies, are at work. In some persons these latter are apparently so impelling as to inhibit completely any innate dynamic. They indeed raise serious doubt as to its existence.

We do not really know then, why man procreates, and in view of the great practical import of man's reproductive tendencies it is surprising that so little attention has been given to the matter by psychologists. The dearth of research is such as to confront us with an unknown into which scarcely a single pathway has been run. The magnitude of the problem is, of course, discouraging when one faces up to the necessity of penetrating the veil of

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man's almost inexhaustible cultural diversity to processes and mechanisms common to man in general—granted that such exist. So great is our ignorance at present, however, that it has seemed eminently worth while to set up subgoals of which we might have some hope of attainment with the resources at present at our command. We *can* inquire into factors at work within the population of our own society, and thus obtain some *limited* accounting of the relevant dynamics. Perhaps the starting point, moreover, is even one of the best possible, since the widely disseminated knowledge of birth control techniques here endows Americans with a degree of choice equal to or greater than that obtaining anywhere else in the world, presenting us with a population likely to be to a considerable degree conscious of its attitude and motives.

B. PROCEDURE

As a first step in what has been envisaged as a long range project, which it is hoped will achieve ever sharper focus as research goes forward, a survey involving person to person interviews with a cross-section of the population of the metropolitan area of Los Angeles, California, was recently carried out. A corps of trained interviewers secured data from a total of 1,021 persons ranging in age from 15 to 45 years in the main, and approximately equally distributed as to sex. Since the survey as originally conceived was centered on the question of *desire* for children the age range mentioned was viewed as one most likely to include persons approaching, at, or receding from a stage of life where reproductive activity is manifest in highest degree and where consciousness of and personal involvement with the possibility of progeny might be expected to be present as well. Sample design insured a representation of all socio-economic strata, but beyond superimposed age and sex quotas no further controls were instituted; it being reasoned that selection by the stated criteria would result in a fairly typical social cross section, satisfactory for the purposes at hand. Supplementary background data such as the education level, religious affiliation, etc., of the respondent were, as usual, secured along with his responses to the numerous attitude and opinion items of the interview schedule.

Analysis in the present report is to be centered on a comparison of social and psychological characteristics of two groups of respondents distinguished by their difference in response to the several questions we employed to separate those wanting to have one or more children from those not wanting any. Of the 1,021 individuals interviewed 857 were found who wanted or had wanted progeny. Included in this group are not only those whose desire has not as yet been realized but also persons who already have children, pro-

vided they wanted them before the time they had them. The contrasted group is composed of individuals, 93 in total, who have never had children and do not want to have any, either at present or at any future time. As might be anticipated, the population of the two groups combined does not include all participants, for a residual group of 71 persons exists, comprised of those whose reactions defined their desire with insufficient clarity for them to be included in either of the principal categories.

The finding that only slightly more than nine per cent of our substantial sample definitely were averse to procreating was something for which we were not wholly prepared, for a considerably larger proportion was expected. As a result, despite the large initial number of participating respondents, the one-sided division by the chosen criterion barely provides a group sizeable enough for reasonably secure comparison. Yet the 93 persons included in this group gain greatly in significance when it is recognized that they constitute deviate personalities in the matter under scrutiny, and hence there seems ample justification for some examination of their characteristics in juxtaposition with those of persons of more common tendencies. In such a procedure lies at least the promise of some insight into the instigations relevant to these latter.

C. RESULTS

1. *Marital Status*

Let us first compare the individuals wanting children (hereinafter to be referred to as *W*) and those who don't want children (hereinafter designated by the symbol *DW*) with respect to marital status. It might be expected that *W* would show a greater incidence of marriage than *DW* inasmuch as marriage is the institution sanctioned for procreation in our society. This proves to be the case, as is illustrated in Table 1. However, the differences between our two groups are somewhat too small to be considered statistically reliable.¹

It is interesting to note that in comparing *D* and *DW* with "All Respondents" we find the latter to fall between the two extremes of *W* and *DW* in

¹In computing the statistical reliability of the differences discovered in this study use has been made of a nomograph designed by Robert Hinshaw (2), and based on the formula

$$\bar{d} = 98 \sqrt{\frac{N_1 + N_2}{N_1 N_2}}$$

in which \bar{d} is the critical limit of a difference between two percentages in different samples or groups, N_1 is the size of one sample, and N_2 is the size of the second sample. This formula, a conservative one, gives limits well within the 5 per cent level.

TABLE 1
MARITAL STATUS OF PERSONS WANTING AND NOT WANTING CHILDREN

Group	N	Married	Not married
Want (W)	857	70.4%	29.6%
All Respondents	1,021	69.2	30.8
Don't Want (DW)	93	68.8	31.2

marital status. This would seem to follow from a logical inspection of the characteristics upon which these extreme groups were built, and being extreme, we would expect our total population to lie somewhere in the middle between them. Nevertheless, this logical deduction is not sufficiently borne out by our data for us to claim anything more than a probable tendency which can only be validated by further investigation along this particular avenue of the total problem.

2. Racial and Cultural Origin

Attention was called in our preliminary comment to the existence of extremely high reproductive rates in various areas of the world inhabited by persons of alien race and culture, and it is the finding of anthropologists that cultures differ in many subtle ways with regard to attitudes surrounding child bearing and rearing. Since our sample contained persons representative of four distinct racial and cultural backgrounds, a comparison of *W* and *DW* groupings was made with an eye to determining whether or not desire for offspring was linked with this factor of racio-cultural origin. The answer, as can be seen from a brief glance at Table 2 is clearly in the negative.

TABLE 2
CHARACTERISTICS OF *W* AND *DW*: RACIAL AND CULTURAL

Group	N	White	Negro	Mexican	Oriental
Want	857	80.9%	7.6%	10.3%	1.2%
Don't Want	93	81.7	8.6	9.7	—
Difference		.8	1.0	.6	1.2

The *W* and *DW* groups are not appreciably differentiated in terms of this variable. This does not, of course, mean that culture is of negligible significance in procreative motivation in a world sense, but simply that there is negligible linkage of this factor with desire for children within our own population.

3. Socio-Economic Status

In view of the known differential in birth rates among the poor as contrasted with the rich in our culture and on the assumption that all strata

of our population know of and practice techniques of contraception; that is, on the assumption that conception of children is largely a matter of choice among our population, it was our expectation that those in our sample not wanting children would be found to be persons of higher socio-economic status than those wanting them. Table 3 summarizes the data with respect

TABLE 3
CHARACTERISTICS OF *W* AND *DW*: SOCIO-ECONOMIC STATUS

Group	<i>N</i>	Wealthy	Average plus	Average	Poor plus	Poor
Want	857	5	23	49	18	5
Don't Want	93	2	23	48	22	5
Difference		3	0	1	3	0

to this question. It offers no confirmation whatever to the foregoing supposition for the net difference in socio-economic status between the two groups is negligible. Apparently factors other than desire must account for the procreative differential between rich and poor. Possibly our assumption is in error and poorer people are not well informed as to methods of birth control, or, if informed, find their use distasteful, or are careless.

4. Educational Level

Closely associated with socio-economic status differentials are differences in educational level, and almost precisely the same relationship to reproductive rate obtains here. That is, the more education the less procreation. A comparison of our *W* and *DW* groups in terms of educational level (Table 4) reveals, however, that they are not at all sharply differentiated in terms of this variable. Although the differences are not large enough to be considered statistically reliable, and hence can be considered merely suggestive, they indicate that people who want children are on the whole somewhat better educated than those who don't. The finding, again, is indicative that man's desires cannot be inferred from actual behavior alone, although it is common to assume so, not only with respect to procreation but with regard to many other aspects of life.

TABLE 4
CHARACTERISTICS OF *W* AND *DW*: EDUCATION

Group	<i>N</i>	Did not complete high school	Completed high school	Had at least some college
Want	857	30%	32%	38%
Don't Want	93	36	31	33
Difference		6	1	5

5. Religion

From the dim past of man's history to the doubting and unbelieving present men have assumed that there was a god or gods somewhere who cared about their reproduction and multiplication, and in the Judeo-Christian traditions of Americans God is represented as commanding us to "be fruitful and multiply." Though the force of the dictum has long since been attenuated through the interpretations and reinterpretations offered by disputant sects, it was one of our initial hypotheses that it was still by no means wholly dissipated and would manifest itself in our data.

One step in ascertaining the degree to which religious teachings are influential in human procreative behavior was taken by determining the percentage of church membership in both *W* and *DW*. That there is a substantial difference between the two is clearly shown in Table 5. These differences, though not quite significant statistically in the matter of membership versus nonmembership, are enhanced considerably by the additional

TABLE 5
A—CHARACTERISTICS OF *W* AND *DW*: CHURCH MEMBERSHIP

Group	<i>N</i>	Church members	Nonmembers
Want	857	66.3%	33.6%
Don't Want	93	59.1	40.9
Difference		7.2	7.3

TABLE 5a
B—DENOMINATION OF CHURCH MEMBERS IN PART A ABOVE

Group	<i>N</i>	Catholic	Protestant	Jewish	Other
Want	568	31.5%	59.3%	8.3%	.7%
Don't Want	55	16.4	76.4	7.3	0.0
Difference		15.1*	17.1*	1.0	.7

*Indicates¹ significant differences.

breakdown of those claiming membership in a church into denomination or sect to which they belong (Table 5).

Between the Catholics and the Protestants we find very significant differences. Our *W* group contains 31.5 per cent Catholic members compared with 16.4 per cent Catholic members in *DW*. In other words, a much smaller percentage of Catholics are found in the Don't Want group than in the Want group. To us this implies a religious motivation toward procreation which is especially effective in the Catholic membership of our *W* group. This implication is borne out by Kiser and Whelpton's study (1) in which it

was found that the Catholics in their sample maintained the highest birth rate, had the highest percentage of large families (five or more children) and the lowest percentage of childless marriages. Clearly, it seems, the precepts of the Catholic church concerning procreation motivate a greater percentage of their membership than that of other churches to have children. We have cited independent investigators above as evidence that greater Catholic motivation is translated into greater Catholic procreation.

In both *W* and *DW* we find that by far the greatest percentage of those who belong to a church are Protestants. This appears a correct outcome if our sample is relatively representative of religious membership in the United States, and this it seems to be. More interesting, however, is the fact that a greater percentage of Protestants belong to the Don't Want class than belong to the Want—17.1 per cent more. This is not only significant in itself but additionally so when it is noted that this is a reversal of Catholic percentages in these same two groups. From this we conclude that there is less influence by the Protestant church upon its members' attitudes and motives toward procreation than there is in the Catholic Church. To summarize the data on religious influence thus far presented, it may be inferred that membership in a church influences persons to desire children, but least among Jews, slightly more among Protestants and greatest of all among Catholics.

In another effort to tap information about the influence religion has upon attitudes and motivation toward procreation we asked the following question of the respondents in both *W*. and *DW* groups: "In your opinion is it a person's religious duty to have children?" Though our results (Table 6)

TABLE 6
RELIGION AND CHILDREN

<i>Q. In your opinion is it a person's religious duty to have children?</i>					
Group	<i>N</i>	Yes	No	Don't Know	Qualified
Want	857	31.9%	64.6%	3.1%	.4%
Don't Want	93	26.9	67.7	3.3	2.1
Difference		5.0	3.1	.2	1.7

do not produce significant differences between our two groups on this question, there is a similarity of results to those obtained on church membership (Table 5). It will be recalled that in the latter case a greater percentage of the Want classification were church members than were those of the Don't Want category. Similarly, in Table 6 the Want group shows a greater percentage than the Don't Want group who believe that it is a religious duty

to have children. This additional information supports the thesis that religion is a positive influence in people's desires for offspring.

6. *Happiness*

Of the sociological variables reviewed in relation to desire for offspring thus far, no strong conditioning of such desire has been seen in any case, save that for religious affiliation. This, however, one might with some justification conceive of as a psychological factor, and certainly quite properly as a quasi-psychological variable. The finding is one that tends to verify what most psychologists have long assumed and sometimes demonstrated; namely that desires for goal objects and goal states of affairs arise out of a *psychological* matrix of conditions and can be most readily accounted for or explained by reference to those conditions. The writers, in endorsing such a view, by no means are to be understood as denying that social conditions, which we often try to pin down by such categorizations as "education," "marital status," "economic status," etc., lie back of, causally, the psychological state of the individual. But it seems that so much is this psychological state a compound resultant of many sociological and cultural influences that seldom can a direct correlation between a given motive and any single sociological condition be demonstrated. It in general seems more fruitful to search for motive antecedents in the psychological state (or field). In the present investigation we could not hope to examine desire in relation to the psychological state as a totality, of course, but had to content ourselves with some mere "spot probes" of it.

One such probe was an inquiry into the individual's childhood happiness, for it was our belief that the individual's experience there might well enter into the frame of reference and psychological state from which present desires issue. To a measure, one may infer from the data presented in Table 7, we have guessed correctly. Those who want children now are most commonly those who were themselves very happy as children. Those not wanting

TABLE 7
QUALITY OF CHILDHOOD HAPPINESS

<i>Q. Would you say that your childhood was: very happy, moderately happy, moderately unhappy, or very unhappy?</i>							
Group	N	Very happy	Moderately happy	Average	Moderately unhappy	Very unhappy	D.K.
Want	857	47.7%	40.0%	2.9%	6.9%	2.4%	.1%
Don't Want	93	31.2	41.9	11.8	10.8	3.2	1.1
Difference		16.5*	1.9	8.9	3.9	.8	1.0

*Indicates statistically significant differences.

children had most commonly only a moderately happy childhood themselves. More than one rationalization of these findings is possible, but we hazard the interpretation that individuals who were happy as children themselves may want children in part because unconsciously or consciously they hope to relive some of their experience in their identifications with their progeny.

7. Attitudes

In order to explore the psychological conditions relevant to reproduction still more, and in the attempt to reveal something concerning the incidence of certain prominent (and apparent) rationalizations for it, both our *W* and *DW* groups were presented with a "question complex" consisting of some five questions centered on rationale. The questions included were not intended to form a scale, but rather, to probe the psychological state of the individual around a common core or area but from various (and perhaps devious) points of entry. The following questions, together with the Table number indicating the obtained responses comprised the "complex."

1. In general do you think that a person can have a full and rewarding life without having children? (Table 8.)
2. Some people have suggested that it is only selfish people who don't want children at all. Do you think that is true or untrue? (Table 9.)
3. Do you think that people have a duty to society to have children? (Table 10.)
4. Some people say that children are necessary to a happy marriage: do you think this is true or untrue? (Table 11.)
5. It has been suggested that many people who want and have children do so because it gives them a sort of feeling of pride of parenthood. Do you think this is true or untrue? (Table 12.)

In Table 8 we obtain the greatest differences between our two groups this far. Twenty-five per cent more of *DW* than *W* think they can have a full and rewarding life without having children. Of the Don't Want individuals, 73.1 per cent answer yes to this question; 22.6 per cent answer no. This is a striking display of group consistency which we interpret as the reactions of people having strong attitudes against having children suddenly faced with a threatening question. To them the question probably sounds something like, "with your negative attitude towards having children, your life will undoubtedly be empty and barren." It isn't very surprising then to find this type of person striking back with a strong denial. In effect he's saying he's going to have a full and rewarding life even if he doesn't have children.

TABLE 8
ATTITUDES OF *W* AND *DW*: CHILDREN AND A FULL LIFE

Q. In general do you think that a person can have a full and rewarding life without having children?

Group	N	Yes	No	Don't Know	Qualified
Want	857	48.1%	48.2%	3.2%	.5%
Don't Want	93	73.1	22.6	4.3	0.0
Difference		25.0*	25.6*	1.1	.5

*Indicates statistically significant difference.

TABLE 9
ATTITUDES OF *W* AND *DW*: PROCREATION AND SELFISHNESS

Q. Some people have suggested that it is only selfish people who don't want children at all. Do you think that is true or untrue?

Group	N	True	Untrue	Don't know	Qualified
Want	857	43.9%	51.8%	3.4%	.9%
Don't Want	93	26.9	66.7	5.3	1.1
Difference		17.0*	14.9*	1.9	.2

*Indicates statistically significant difference.

TABLE 10
ATTITUDES OF *W* AND *DW*: PROCREATION A DUTY TO SOCIETY

Q. Do you think that people have a duty to society to have children?

Group	N	Yes	No	Don't know	Qualified
Want	857	56.6%	38.4%	4.5%	.5%
Don't Want	93	44.1	51.6	4.3	—
Difference		12.5*	13.2*	.2	.5

*Indicates statistically significant difference.

TABLE 11
ATTITUDES OF *W* AND *DW*: CHILDREN AND MARRIAGE

Q. Some people say that children are necessary to a happy marriage. Do you think this is true?

Group	N	True	Untrue	Don't know	Qualified
Want	857	61.7%	35.3%	2.5%	.5%
Don't Want	93	45.2	49.4	3.2	2.2
Difference		16.5*	14.4*	.7	1.7

*Indicates statistically significant difference.

TABLE 12
ATTITUDES OF *W* AND *DW*: PROCREATION AND PRIDE

Q. It has been suggested that many people who want and have children do so because it gives them a sort of feeling of pride of parenthood. Do you think this is true or untrue?

Group	N	True	Untrue	Don't know
Want	857	80%	17%	3%
Don't Want	93	77	16	7
Difference		3	1	4

In contrast the *W* group is not so one-sided on this question of children and a rewarding life; in fact its answers are divided about equally for and against the idea.

The next largest differences are found in Table 9, where differences, while large and significant, are not quite as great as they were in Table 8. The one exception to this is the greater difference found in Table 9 within the *W* group.

The defense interpretation given above for the reactions to the question in Table 8 seemingly also applies to the results illustrated in Table 9; that is, the Don't Want individual again finds himself threatened and told that he is selfish because he doesn't want children. Not agreeing that he is a selfish person, or at any rate not wanting to be told so, he comes back again with a resounding answer, Untrue. It is to be noted that on this question the Want's answer more often "untrue" than "true," but much less one-sidedly so than the *DW* group.

In Table 10 are summarized answers to the question unit dealing with the subject of having children as a duty to society; in Table 11 are answers to the question relating children to a happy marriage. Both questions produce significant differences in response from our two groups. The Don't Want group seems to continue "true blue" in reactions to these units of the complex. But the *W* group changes colors somewhat on these latest questions. Formerly the *W* group divided its responses almost equally between "Yes" and "No" or "True" and "Untrue" answers. Now, there is a substantial change, with a preponderance of "Yes" in Table 10 and "True" in Table 11. The explanation for this substantial shift in response could very well be that in these two questions are embodied two very popular rationalizations for having children. It would be very natural for persons, such as those in *W*, who say they want children to seize upon such "good" rationalizations when they are provided by the society in which they live.

The only question in this group of five which did not evoke significant differences between *W* and *DW* was the one dealing with pride of parenthood (Table 12). Originally, the units of the "question complex" used in this part of our study were not constructed with a threat content in mind. The main objective was to sound for attitudes in the area as well as possible in five units. However, when confronted with the resulting data and a need for meaning, it quickly became apparent that four out of the five did carry some threat; while one, the one in Table 12, carried practically none, if any at all. The response to it very probably is the function of another variable or other variables.

Although it cannot be claimed that the response data involved in this series of five attitude and belief questions advance us more than a little in understanding human procreative drive, it is our conviction that inquiry pressed at the level of these dispositions will in future prove very rewarding indeed. It will necessitate, of course, much trial and error before one can formulate well structured hypotheses or build scales which would have predictive and diagnostic value, but such seem far from an impossibility, and there lies in their development and use the promise of quite significant revelations concerning the relationship between motives (or desires) on the one hand and attitudes and beliefs on the other. In effect, too, we are arguing that this general problem should attract theory makers as well as fact finders and people who like ourselves are just curious as to why people really have kids.

8. *A Note on the Biological Variable*

There was not found to be any appreciable or statistically significant difference between the *W* and *DW* groups as far as sex was concerned. Just slightly more of the *W* group were females, and just slightly more of the *DW* group were males.

D. SUMMARY

In this report have been presented some of the findings of an interview survey which was recently carried out in Los Angeles, California, wherein a cross-sectional sample of 1,021 persons were queried as to their desire for offspring and with regard to various other matters which it was supposed might relate to it. Although negligible correlation between desire for children and various sociological variables was found, a variety of psychological variables were indicated to have some significant relationship to it. Among these were religion, childhood happiness, and various attitudes and beliefs. It was suggested that future efforts on the general problem should be pointed toward more complete exploration and definition of the psychological matrix of conditions underlying desire for progeny, since what has been learned to date seems to promise greater rewards and results via that approach than does one which concentrates on possibly correlated racial, cultural, economic, educational, and similar objective or sociological factors.

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THE RELATIONSHIP OF ATTITUDES AND CHANGES IN ATTITUDES TOWARD SURVIVAL ADEQUACY TO THE ACHIEVEMENT OF SURVIVAL KNOWLEDGE*

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A. PURPOSE

The purpose of this study is to examine the relationships between attitudes of combat air crew members toward their personal adequacy for survival under emergency conditions and problems of training combat air crews for survival. Specifically, an attempt is made to determine the relationship between (a) attitude and survival information, (b) attitude change and survival information, (c) attitude and gains in survival information and, (d) change in attitude and gains in survival information.

B. SUBJECTS

The subjects of this study are 500 combat air crew members undergoing training at the Strategic Air Command Survival School located at Camp Carson, Colorado.

C. RELATED RESEARCH

Significant studies of the relationship between attitudes and problems of learning are rather sparse. Social psychologists such as Krech have declared that "attitudes are the very stuff learning is made of" and that "acquiring an attitude and giving meaning to that attitude helps to achieve other social ends" (3). A study by Woodruff and DiVesta (9) of students' attitudes toward the abolition of fraternities and sororities demonstrated that changes in attitudes can be brought about by changing the individual's concept of the object toward which the attitude is expressed. Gleason, in a study of the relation of information to attitude toward the Taft-Hartley Law (2), and Shinerberg, in a study of information and attitude toward world affairs (6), found no significant relationship between information and attitude and that the presentation of facts did not readily change beliefs. It might be reasoned, however, that the presentation of facts do not necessarily change concepts and the facts presented may not actually be accepted.

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In studies of self-concept and learning, there is at least a body of relevant theory. Perhaps the most relevant is Lecky's theory (4) that what one is able to learn is in large part determined by how he has learned to define himself. Therefore, to effect a change in one's feelings of adequacy for survival, it might be inferred that both his concept of himself and of the demands of survival must be changed.

D. INSTRUMENTS FOR ASSESSING CHANGES

The device used for assessing changes in feelings of adequacy for survival is a simple multiple-choice item which poses the question, "How adequate do you consider your survival knowledge and skills?" The multiple-choice responses are scaled as follows:

- (a). Inadequate for individual or group survival.
- (b). Adequate for group survival only.
- (c). Adequate for both individual and group survival but not for leader of a survival group.
- (d). Adequate for both individual and group survival and with more training and experience for leader of a survival group.
- (e). Adequate for individual and group survival and for leader of a survival group.

The two tests for evaluating the achievement of survival information consist of 100 items each of approximately equivalent difficulty and content sampling. The areas sampled include: outdoor craft, communication, travel techniques, food and water, parachute training, survival kit, and survival leadership.

E. THE CHANGE EXPERIENCE

Both of the instruments just described were administered at the beginning and at the conclusion of the "change experience," 15 fast-moving days which combines learning through lectures and demonstrations with learning through experience. The training program preserves some of the shock of an actual survival situation and is designed to eliminate suicidal panic. Impressed by the high loss ratio of air crew members in the last war who landed alive and never made it out and by the recognition that *SAC* crews are irreplaceable, *SAC* instituted this training program to teach the techniques of staying alive. It was found that men can starve to death within sight of streams running with fish or freeze to death in a forest for lack of wood. Many simply gave up and didn't try because they didn't think that they could do it. The importance of building confidence in ability to survive is thus obviously great.

The training program includes four days of training at Camp Carson, four days in a static camp area in the Pike National Forest, and seven days on a cross-country trek through unfamiliar territory. The first three days at Carson and the time in the static camp area are designed for teaching the basic information and skills necessary for survival and the trek gives an opportunity to apply what has been learned.

F. PROCEDURES

The data on which this study is based were collected from two classes. The first consisted of 24 *FEAF* replacement crews and the second consisted of 22 *SAC* crews from 13 different Air Force bases plus two crews of Navy and Marine personnel. The pre-training measures were administered during the first day of training and the post-training measures were administered on the last day of training after the return to Camp Carson.

For purposes of statistical analysis, individual gains on the achievement examination were computed and entered in cells according to the pre- and post-attitude responses of the particular trainee. The mean gains from the initial achievement test scores were regressed and mean gains for each of the attitude and attitude change categories of pre-test scores, analysis of variance of gains using a three-by-three factorial design, and tests of significance of differences between means were made.

G. FINDINGS

Trainees made very marked gains on both the confidence and achievement measures (statistically significant at less than the one percent level of confidence). Initially, about 35 per cent felt inadequate for individual survival and at the conclusion of training, only about 6 per cent felt inadequate to this degree. The percentage feeling adequate for leadership changed from about 10 per cent to 32 per cent. Informational gains amounted to about 20 per cent over the initial scores.

1. *Attitudes and Pre-Training Achievement*

Table 1 shows the mean initial scores for each of the attitude and attitude change categories on the achievement test. As is seen from this table, there is a rather consistent tendency for those who are most confident to achieve the highest initial scores on the achievement test.

To test the significance of these tendencies, an analysis of covariance was made to study the source of the variation. The results given in Table 2 substantiate the observed tendencies.

The amount of survival information possessed by a trainee at the beginning of his training seems to condition his attitude toward his survival adequacy both at the beginning and at the end of his training. It is especially interesting to note that this relationship becomes clearer and more significant at the end of training.

TABLE 1
MEAN INITIAL SCORES ON SURVIVAL ACHIEVEMENT EXAMINATION

PRE-TEST RESPONSE	POST-TEST RESPONSE			Total
	Inadequate for indiv. survival	Adequate for indiv. but not for leader	Adequate for indiv. and leader	
Inadequate for indiv. survival	56.8	59.6	58.3	59.1
Adequate for indiv. but not for leader	52.4	60.6	63.9	61.1
Adequate for indiv. and leader	50.0	62.0	60.6	60.5
Total	54.6	60.2	62.5	

TABLE 2
SOURCES OF VARIATION OF PRE-TEST SCORES

Source of variation	Degrees of freedom	Sum of squares	Mean squares	F	Level of significance
Between cells	8	2,320	290.0	5.81	1%
Between columns	2	1,395	697.5	13.98	1%
Between rows	2	389	194.5	3.90	5%
Interaction	4	536	134.0	2.69	5%

2. Attitude Change and Achievement

By examining Table 1, it is seen that there is a consistent tendency for those who accept more favorable attitudes toward their adequacy for survival to achieve higher scores than those who do not change in a positive direction. Evidently, those who are most lacking in survival knowledge become aware of this deficiency as a result of the experiences of the 15 days of training and either maintain or lower their self-estimates. For those possessing the most survival information, the experiences are reinforcing. They come to recognize the value of their knowledge as a result of the training. This trend becomes much clearer when gains in achievement are considered.

3. Attitude Change and Achievement Gains

Table 3 shows the mean gains from the initial achievement test scores after adjustment for the phenomenon of regression according to the method of

Snedecor (7). Immediate inspection of this table shows that there is a consistent tendency for those who change in attitude toward their survival adequacy in a positive direction to make the greatest gains on the survival achievement test.

Analysis of co-variance according to the method of Cochran and Cox (1) as shown in Table 4 indicates that these observations are significant.

TABLE 3
MEAN GAINS FROM INITIAL ACHIEVEMENT TEST SCORES AFTER ADJUSTMENT

PRE-TEST RESPONSE	Inadequate for indiv. survival	POST-TEST RESPONSE Adequate for indiv. but not for leader	Adequate for indiv. and leader	Total
Inadequate for indiv. survival	10.3	10.1	10.6	10.28
Adequate for indiv. survival but not for leader	6.2	8.5	10.6	9.05
Adequate for indiv. survival and for leader	8.6	9.3	12.2	11.53
Totals	8.29	8.87	10.93	

TABLE 4
SOURCES OF VARIATION OF ADJUSTED MEANS

Source of variation	Degree of freedom	Sum of squares	Mean squares	F	Level of signifi- cance
Between groups	8	649	81.1	3.24	1%
Between columns	2	705	352.5	14.07	1%
Between rows	2	137.9	69.0	2.75	8%
Interaction	4	81.9	20.5		

These data indicate that the acquisition of survival knowledge is related to gains in feelings of adequacy, suggesting that gains in information contribute to feelings of adequacy.

4. *Pre-Training Attitudes and Achievement Gains*

When the differences in the adjusted means observed in the "totals" column of Table 3 are tested by the *t*-ratio, it is found that the mean gains for those who initially felt most and least adequate are significantly greater than those who assumed an intermediate position ($t_1 = 4.00$ and $t_2 = 4.28$, both significant at the 1 per cent level of confidence).

These relationships suggest that feelings of inadequacy for survival consti-

tute a felt need and serve as a motivator of learning. They also suggest that the acceptance of a leadership rôle self-concept also constitutes a felt need and motivates learning, while those who feel adequate but reject a leadership rôle feel no such need and are not as well motivated.

H. SUMMARY AND CONCLUSIONS

Five hundred combat aircrewmembers undergoing survival training were administered pre- and post-training tests of achievement and attitudes of adequacy for survival. An analysis of the data seem to warrant the following conclusions:

1. The possession of survival knowledge at the beginning of Survival School training contributes to the development of feelings of adequacy for survival, perhaps as a result of reinforcement and experience in the training program.

2. The acquisition of additional knowledge during survival training also contributes to increased feelings of adequacy for survival.

3. Those who accept leadership rôle self-concepts and those who feel most inadequate achieve greater gains in survival information than those who feel adequate but reject leadership rôle self-concepts. Level of aspiration as a motivating factor in learning is reflected in the finding that achievement gains are significantly related to the self-concepts expressed at the conclusion of training.

4. If the development of increased feelings of self-confidence in ability to survive is accepted as an important training objective, emphasis upon the teaching of technical information about survival is warranted.

5. An objective of orientation to the training program might well be the acceptance of a personal need for training on the part of trainees.

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GROUP BELIEFS AND SOCIO-CULTURAL FACTORS IN RELIGIOUS DELUSIONS* •

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A. THE PROBLEM •

The present study is part of a clinical investigation of psychotic patients with religious delusions which was conducted at the Colorado State Hospital in Pueblo, Colorado, during the summer of 1950. It represents an attempt to analyze the relationship between (a) group beliefs, (b) socio-cultural factors, and religious delusions.

B. SUBJECTS

The group of patients consisted of five males and six females, all of them native Protestants. In two cases the extent of religious indoctrination in childhood could not be fully ascertained; however, frequent references to a particular church and to church work indicated their early church associations. All other records revealed the patients' religious upbringing, their church connections, their socio-economic status, and the points of individual departure from group-shared beliefs. Table 1 summarizes the patient's childhood and adult environments, as well as their major social problems.

C. METHOD

Each subject was given an average of 20 individual interviews of 50 minutes duration which included the administration of three projective tests. The Rorschach, *TAT*, and a Religious Projection Test designed for this study were presented in this order. A number of subjects also responded to the request to write their autobiography and to report their dreams.

Collateral data were available in most cases from a study of the social history as contained in the reports of social agencies, and medical reports. Additional information was obtained from the Chaplain and the members of the psychiatric staff of the institution.

D. GROUPS' BELIEFS AND DELUSIONS

In regard to the relation of religious beliefs, as found in the psychotic patients of this study, and those of the religious groups to which they *belonged before their sickness*, it may be stated:

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TABLE 1
SOCIO-CULTURAL ENVIRONMENT AND PROBLEMS OF ELEVEN RELIGIOUS PSYCHOTICS

Subject	Childhood environment*	Adult environment**	Major social problem
<i>William</i>	Small farm in South; strictly religious; oldest of 11 siblings	Small farm; church activities; married	Poverty; sickness; malnutrition; dependency
<i>Robert</i>	Migratory; strictly religious; oldest of 13 siblings	Part-time mail carrier; married twice; promiscuous	Sexual and marital adjustment; economic exploitation; dependency
<i>Charles</i>	Small farm in South; siblings not known	Migratory farmer and preacher; unmarried	Social isolate; dependency
<i>Sam</i>	Small farm in South; siblings and religious background not known	Dining car waiter; married twice; promiscuous	Marital and social adjustment; dependency
<i>George</i>	Small farm; oldest of 4 siblings; strictly religious	Small business first, later baptizer and healer; married twice	Marital adjustment; poverty
<i>Ruth</i>	Small farm; oldest of 10 siblings; very religious	Waitress and cook; married 5 times; promiscuous	Sexual, social and marital adjustment; poverty; dependency
<i>Sara</i>	Small farm in South; youngest of 2 siblings; very religious	Sold stationary to offices; church activities; unmarried	Social isolate; poverty; dependency
<i>Mildred</i>	Small farm; 14 children; strictly religious	Housewife; married twice; promiscuous	Sexual, social and marital adjustment
<i>Betty</i>	Small farm; one brother; strictly religious	Preacher and evangelist; divorced; promiscuous	Sexual, social and marital adjustment; poverty; dependency
<i>Barbara</i>	Small farm; one sister; religious background not known	Maid; unmarried	Sexual, social and marital adjustment; poverty; dependency
<i>Helen</i>	Small town; 4th of 6 children; religious	Housewife; divorced	Social and marital adjustment; sickness; poverty

*Of eleven patients: Four from families with 10 to 14 siblings; two from families with four to six siblings; two from families with two siblings; three from families with siblings unknown.

**Seven of the patients divorced and remarried from one to four times; one undivorced; three never married; about one-half had extra-marital relations.

1. The closer the religious psychotic was associated with his religious group, the more strongly were specific systematic religious beliefs retained in his delusions.

The cases of William, Robert, Charles, George, and Sara (Group A) exemplify this statement. The two first are ministers' sons; the three others also grew up in extremely strict fundamentalistic environments.

2. The more subjectively ambiguous, though religiously severe, the early environment was, the more did dogmatic beliefs of the psychotic's religious group become distorted in his delusions.

The cases of Sam, Ruth, Mildred, Betty, Barbara, and Helen (Group B) illustrate this point.

The members of Group A have identified with a parent, cling tenaciously to the dogma of the church, and the delusions are the results of identification with fully accepted symbols.

The members of Group B have in the past frequently changed their church affiliations. Their social experiences have led to a rejection of various features of their rigid childhood beliefs or the dogma of their church. Here the rigidity of the dogma has backfired as a result of subjective ambivalent attitudes or ambiguity in the home situation, conflicts due to insufficient or lacking identification with parents, severe social trauma and greater aggressive needs. Exemplifications follow:

Group A

William: All religious attitudes are strictly "based on the Scripture"; he is engaged in "continual worship of God in the parents' teachings and suggestions."

Robert: All religious ideas are in complete accordance with sectarian Bible interpretation of his father.

Charles: All stories reflect literal Bible adherence.

George: Follows mother's literal Bible interpretation; a strong doctrinaire.

Sara: Strictly adhering to mother's religious teachings.

All of them identify with the dogmatic beliefs shared by their original group. They differ from it in the degree of egocentricity and affective needs which forces them to seek more significant rôles within the religious system. They "think themselves" into a superior religious status which excludes effective social functioning, alienates them from the group, and is therefore called a delusion.

Group B

Sam: Polytheistic notions intrude upon his Christian concepts.

Ruth: Sees "something wrong with churches," and although she joined "a lot of churches," she "never was religious"; she dislikes "close communion," thinks religion is a "means of hiding one's sin, the devil's tool." She prefers "faith," however, based upon Christian symbols.

Mildred: God tells her most of her early teachings were "bullshit," but she believes strongly in a "mormonism that takes in all the truth."

Betty: Changed membership in churches repeatedly, criticizes them, developed her own symbols.

Barbara: Retains rudiments of Christian concepts; populates heaven with potentates.

Helen: Belonged to many churches, but "never studied the Scripture."

All members of this group deviate more or less from the beliefs shared by their original groups in their critical, rejecting attitudes toward the church or important concepts of church dogma. Like the first group, they also differ from the normal group in the degree of egocentricity by means of which their affective needs force them into a more significant rôle within the religious system, but in them aggression or aggressive withdrawal, as well as social determinants of their delusions appear more strongly pronounced. Group *A* appears less sophisticated, overtly more compliant and more infantile in its blind adherence to childhood teachings, and in the literal and total embracing of symbols to which they make themselves a central part. The second group displays a greater amount of hostility which enabled some of its members to digress from shared concepts by "shopping around" in a variety of denominations or finally establishing for themselves a system adequate for their needs and at variance with orthodox church beliefs. Psychologically, the opposition to the learned beliefs may express attempts toward emotional autonomy and independence from domination, a process which, however, remains sterile and abortive. In some members of both groups, latent homosexuality is indicated.

It is noteworthy that a complete turnabout from conventional religion to archaic religious concepts appeared in the cases of the two Negro members of the second group, Sam and Barbara. While both in less disturbed states gave lip service to traditional beliefs, they regressed into esoteric religious explications when perturbed, thus finding an outlet for their hostile and aggressive needs.

The findings in this section indicate that both in group-shared beliefs and in religious delusions we find similar subjective overt rôle-taking which,

however, serve differential personality needs. In general, basic learned beliefs were retained by the psychotic, clearly indicating their cultural determination. These findings confirm those in some previous investigations (16, 19).

E. SOCIO-CULTURAL FACTORS AND RELIGIOUS DELUSIONS

All subjects of this study came from Protestant homes. Table 1 revealed the patients' severe social environments and identified their major difficulties. An outstanding feature of the records is the economic deprivation to which most patients had been subjected throughout their lives, and the social, sexual, and marital difficulties which all of them had encountered. An examination of the histories impresses upon the observer the realization of the interplay between socio-sexual-occupational and individual factors involved in the etiology of the subjects' personality disorganization. Analysis of the records confirms the viewpoint of the socially oriented psychopathologists (1, 3, 5, 7, 8, 9, 11, 12, 20) as to the primacy of conflict-producing social conditions which are at the basis of behavior disorders.

In all present cases we deal with people who have been ineffective in interpersonal relationships, in social rôle-taking, in their striving for social status, in occupation, sex, and marriage. Their culture failed in adapting them to itself, or in allowing them a satisfying compromise with it. These religious psychotics did not become fighters against social frustrations as do political radicals; they did not seek satisfactions by overt aggression, as do criminals. These religious psychotics were fundamentally and initially conformists; they were "good boys" (2) who did not revolt against society, but strove for more participation in it. Their struggle with theological problems is an analogy of their struggle for a more meaningful existence in the ocean of social and personal difficulties. In their social anxiety and solitary brooding, they have become reaction-sensitized to the products of their unshared cognitive manipulations and they cling to, or rediscover, learned symbols of their childhood saturated with connotative meanings. Their misery reflects the wretchedness of socio-cultural factors from which it is derived. Each individual breakdown discloses and represents a crack in the societal structure.

The metaphysical speculations of Jung *et al.* (13, 14) regarding a collective unconscious and biologically inherited symbol images have found no corroboration in this study. The bulk of the evidence in this sample points strongly in the direction of cognitive material in religious psychotics which was supplied by the dogmatic concepts of their social group.

Most of the patients came, significantly, from large families (14 to 2 children, mean 7.6), and all of them were brought up on small farms or in small communities. The majority were born around the turn of the century and in their formative years automobile, telephone, radio, and other modern media of easy communication were not yet available. It would appear that the development of specifically religious delusions was more favorable under more primitive living conditions, and that with present-day mobility, facilitation of cultural exchange and improved educational opportunities, a decline in delusions pertaining to religion may be in the making. Statistics to prove this viewpoint are, of course, not existent. On the other hand, there is abundant evidence for the continued need of religious associations, as indicated by the increase in church membership and the continued operation of sects which catered to emotional needs of the frustrated who feel too insignificant within the larger denominations (23). It seems justified to attribute these phenomena to social causes; to attempts at restoring more significance to individual living which the complexities and obstacles of modern society obscure. Religious leaders carry the great responsibility to meet the challenge for improving conditions which sometimes germinate immature religiosity (17, 21), but in the last analysis selective religious association must be considered as incidental as far as the development of religious delusions is concerned. The members of over-emotional sects may or may not become social deviates, depending less upon the religious atmosphere in churches favoring such development than upon the general socio-cultural matrix which gives rise to specific needs and then prevents their fulfillment.

The specificity of religion in delusions appears then as a function of frustrating and immature factors in social living, and as a breakdown of social communication. With reduced isolation of individuals, religious delusions may in time be replaced by delusions of a different coloration, but delusions will continue to come into being in a society which leaves people "powerless and alone, anxious and insecure" (9).

F. CONCLUSIONS

The most significant common feature of all records in this study is the economic deprivation to which most patients were subjected throughout their lives and the overwhelming social, sexual, and marital difficulties which all of them encountered. The primacy of conflict-producing social conditions in the etiology of religious delusions appears evident. It is suggested that the development of specifically religious delusions appears to be more favorable under more primitive living conditions, but that selective religious associa-

tion is incidental in the formation of religious delusions. The bulk of the evidence suggests that the cognitive material in religious psychotics is supplied by the socio-cultural concepts of their group. In no case could it be demonstrated that religious preoccupation per se engenders mental disorder. Religious delusions appear to be epiphenomena of emotional and socially blocked needs, varying in degree of fixation upon, or regression to, infantile symbols as a function of the degree of social sophistication and deprivation.

The individuals encountered were basically striving for cultural participation and had a more or less ephemeral interest in the problems of traditional religion. Their reactions in states of acute anxiety reflect the excessive frustration which they encountered in their social milieu.

The problem of the prevention of religious delusions thus becomes a part of the larger problem of the prevention of behavior disorders in general. There is no proof for the pessimistic statement that "man is incapable to endure his existence without delusions" (22) or that "he cannot liberate himself from psychotic mechanisms of early infancy" (18).

The hope for improved mental health lies in the creation of a rational society, in a deeper understanding of the individual himself, and in greater sympathy and tolerance. As Fromm (10) expresses it: "The problem of mental health cannot be separated from the basic human problem, that of achieving the aims of human life: independence, integrity, and the ability to love." Delusions arise from "a lack of cultural opportunities; . . . an inferior store of information; lack of training; retarded cultural beliefs; religion of narrow outlook" (10), and from the "general belief in the validity of psychic phenomena" (6).

The prevention of delusions lies in the reduction of frustrations in social living and the strengthening of rational thinking.

Intelligent appreciation of subjective experience, whether spiritual or perceptual, demands the application of conceptual thinking to the data of experience and not merely explanation of the experience at its own level in terms of what it feels like. Human intelligence in the form of conceptual thinking has corrected our perceptual impression that the sun rises and sets. It is to the same intelligence that we must look for the necessary correction and evaluation of religious experience (4, p. 77).

At least one study (15) has shown that the common assumption of religion as the source of humanitarianism cannot be supported, that "religiosity does not imply humanitarianism despite the fact that the Christian religion could be a chief source of fellowship, tolerance, altruism, and brotherhood." Since religion and humanitarianism are certainly not antagonistic, institu-

tionalized religion can help promote individual independence, rationality, and happiness by helping in the elimination of contradictory moral and ethical values, and by reeducating society in terms of the mature religious ideals of truth, justice, love, and knowledge.

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STUDIES IN STEREOTYPES: IV. LEBANESE BUSINESS MEN*

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A. THE PROBLEM

Students of stereotypes have generally followed the technique used by Katz and Braly (3) of asking university students to list the adjectives which characterize a certain national group. If a substantial number agree on the adjectives which should be attributed to a given group, then it is assumed that the students have a stereotype of that group. Eysenck and Crown (1) have criticized this procedure on a basis of "introspections" obtained from the subjects of such a study. Their subjects described stereotypes, but many also reported that they did not actually believe that the group was like that. Consequently it was concluded that there is in existence a culturally determined stereotype, but that this picture is relied upon by university students only because they dare not reply to a professor's request for adjectives by saying that his request is absurd.

In evaluating this criticism of studies of stereotypes, Klineberg (4) has pointed out instances in which subjects gave strong verbal support to their stereotype. Furthermore, Gilbert's study (2) of college students showed that many of his subjects were quite willing to state in writing that they could not list adjectives because they did not believe in stereotypes. He points out also that we cannot take a repudiation of stereotypes at face value any more than we can take stereotypes at face value. Many college students have learned from the antibigotry campaigns of World War II that it is unsophisticated and naïve to make overgeneralizations about races and nations. But can we assume that a person is unaffected by stereotypes because he says "I don't really believe it myself, but other people say that the Lebanese are . . ." Even if the point of view presented by Eysenck and Crown were correct, studies of the culturally determined picture (which students know but disbelieve) would be useful. Changes of the picture in time, consistency of the picture in different countries, and relationship of the picture to social tensions would still be important to know. The fact

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¹The author expresses his appreciation to Mrs. Mary Guthrie, for invaluable assistance in collecting and tabulating the data.

that the subjects reporting the picture did not endorse it would not necessarily lessen its usefulness.

Even the investigators who disagree with the criticism of Eysenck and Crown would concede that stereotype studies should be conducted with non-students as subjects. In this area, as in the entire field of opinion and attitude research, it is important to determine the generality of our observations. In this investigation, therefore, an attempt has been made to determine the stereotypes of business men. A deliberate effort was made to arrange the situation so that the respondents would be under little or no pressure or obligation. It was hoped that such an arrangement would maximize the possibility of candid replies. A study of the stereotypes of university students in the same city had already been made (5), and a comparison of results was therefore possible.

B. SUBJECTS

The subjects were owners of business establishments in Beirut, Lebanon. They were selected by entering business establishments in the downtown area and requesting the owner to cooperate in a survey of public opinion. A substantial number of persons so approached did not wish to participate. One hundred thirty business men agreed to cooperate in the study, but only 90 of these returned usable questionnaires. Of these, 30 were Moslems, 53 were Christian, and seven did not indicate religious affiliation.

C. PROCEDURE

Coöperation of the business men was solicited by three Lebanese girls. These young ladies were not psychologists, nor were they acquainted personally with any of the participants. Each one carried a large number of questionnaires at all times so that the subjects would feel confident of anonymity. Upon entering each store or shop, she asked to see the owner. To him she explained that she was conducting an opinion poll, and would appreciate his coöperation. If he agreed to cooperate she showed him the questionnaire and explained briefly what information was sought. If he still agreed to cooperate, the questionnaire was left with him to be filled out in privacy. It was called for on the following day. It is possible that some subjects sought help from others, although they were requested not to do so. It seems unlikely, from the small size of the sample and the large size of the business district, that subjects consulted each other. By use of young ladies to distribute and collect the questionnaires, we effected a reversal of the dominance-submission relationship found in the classroom experiments. Women do not enjoy equal status in the Arab world, and their rôle is a

submissive one. Beirut has been influenced to some extent by Western ideas of equality, but women still lack social equality. For example, they do not have voting privileges. Consequently it seems certain that the context in which this study was conducted was vastly different from that of the usual study.

D. MATERIALS

The questionnaire was in Arabic, and consisted of a list of 97 adjectives followed by instructions to select from the list as many words as needed to characterize these people: Americans, Chinese, English, Germans, French, Irish, Italians, Japanese, Lebanese, Russians, and Turks. Adjectives not on the list could be added at will. Space was provided for as many as nine adjectives per group. The questionnaire was the same as that used by Prothro and Melikian (5) in their study of Beirut university students, except that the adjectives "artistic" and "proud" were omitted through typographical error. Some of the subjects, however, wrote in the word "artistic" when characterizing some of the groups.

E. RESULTS AND DISCUSSION

The 40 persons who did not fill out the questionnaires, after having agreed to participate in the study, are a significant part of our results. The fact that such a substantial number preferred not to reply suggests the possibility that some subjects in classroom experiments are participating unwillingly. On the other hand, we cannot assume that our 40 non-participants are persons without stereotypes. Indeed, if we were to accept their statements at face value, we would conclude that there was some other obstruction in a majority of cases. Ten of the 40 stated that their knowledge of written Arabic was inadequate. Spoken Arabic differs from written Arabic, and it is possible that some persons who speak colloquial Lebanese Arabic may read and write only French or English. Three persons filled out the questionnaires in such a fashion that they could not be used. For example, one of them skillfully converted the adjectives into names of local race horses by adding a letter or stroke to each. He then described the national groups somewhat symbolically by ascribing names of race horses to them. The remaining 27 demurred on various grounds. Some stated frankly that they were willing to reply orally but not in writing; some were "pressed for time," others had "forgotten," etc. It would be difficult to decide whether the non-respondents did or did not actually hold stereotypes.

The adjectives mentioned most frequently by the subjects who did participate are presented in Table 1. Those adjectives which were also most

TABLE 1

TEN ADJECTIVES MOST FREQUENTLY ASSIGNED BY 90 BEIRUT BUSINESS MEN
(Numbers refer to per cent of subjects listing each adjective)

<i>Americans</i>	<i>Chinese</i>	<i>English</i>
*rich 67	*simple 27	*political 48
*industrial 43	*superstitious 24	*silly 39
*mercantile 42	*backward 23	*treacherous 34
*democratic 29	enslaved 22	*shrewd 34
militaristic 27	*poor 21	miserly 32
clever 25	*heretical 19	industrial 29
generous 21	militaristic 18	base 23
political 19	*ignorant 17	liars 22
*sportsmanlike 18	doctrinaire 17	criminal 22
sociable 18	imitative 15	mean 21
<i>French</i>	<i>Germans</i>	<i>Irish</i>
militaristic 32	*strong-willed 43	silly 21
generous 31	clever 40	withdrawn 20
clever 30	conquerors 39	well-mannered 19
*emotional 28	*militaristic 39	rich 18
gentle 24	*strong 36	*peaceful 18
humanitarian 22	*industrial 36	cultured 16
conquerors 22	*nationalistic 22	gentle 16
artistic 21	self-sacrificing 21	industrial 16
well-mannered 17	determined 17	*miserly 16
graceful 17	political 16	clever 16
<i>Italians</i>	<i>Japanese</i>	<i>Lebanese</i>
*musical 47	*self-sacrificing 57	*mercantile 39
clever 27	*industrial 35	*clever 36
*industrial 26	mercantile 24	poor 34
*emotional 26	conquerors 23	generous 32
graceful 22	clever 23	*sectarian 26
*mercantile 19	*militaristic 22	peaceful 24
*imaginative 19	energetic 20	sportsmanlike 21
poor 18	*strong 17	superficial 18
gay 18	poor 17	gentle 16
gentle 17	*nationalistic 17	cultured 15
<i>Russians</i>	<i>Turks</i>	
*militaristic 34	*militaristic 28	
*strong 28	sportsmanlike 27	
political 26	conquerors 21	
conquerors 21	strong-willed 20	
*doctrinaire 20	*strong 17	
*practical 20	*subservient 17	
aspiring 19	criminal 16	
self-sacrificing 19	cruel 16	
industrial 17	miserly 15	
clever 17	aspiring 15	

*The adjective was one of the 10 most frequently assigned to this group, by American University of Beirut sophomores.

frequently assigned by university students in the same city are marked with an asterisk. It will be noted at once that the business men and the students had very similar stereotypes of many groups. The nationalities on which there was 50 per cent agreement on the 10 most frequently assigned adjectives are: American, Chinese, Germans, Italians, and Japanese. The business men agreed with the students on much of the stereotype of the English, but also listed more unfavorable adjectives. This difference is probably a function of the time that elapsed between the two studies. During the interval from April, 1951, to January, 1952, the Iranian controversy with the Anglo-Iranian Oil Company took place, and at the time the study of the business men was made, Egyptians were waging guerilla warfare against the British in Suez. These events in the Arab world would unquestionably have reflected themselves in the stereotypes of the students also.

The stereotypes of the Russians held by our subjects and by the university students are quite similar in total pattern, and four of the first seven adjectives are agreed upon by both groups. The stereotypes the two groups have of Turks is also similar, although only three adjectives are common to the two lists. The students include also such traits as nationalistic, oppressive, and courageous, which are not unlike political, conquerors, and self-sacrificing.

It is interesting to note that the business men of Beirut have a rather favorable picture of the French in spite of the fact that Lebanon was under the French mandate until 1943. The contrast between the picture of the French and that of the English is particularly noticeable. A complete explanation of the favorable attitude toward a power which formerly exercised control of the country would require extensive excursion into political history. The fact that such an attitude exists, however, is well demonstrated by our data. It should be noted that the students at the American University had a less definite and less favorable stereotype of the French. This can probably be attributed to the fact that there is a French university in Beirut which draws a majority of the pro-French students.

Our subjects had a somewhat more favorable picture of the Lebanese than did the students, but there was agreement on three of the first five adjectives. It should be mentioned that, although the students were all Arabs, only one-third of them were Lebanese. There was very little agreement on traits which our subjects attributed to the Irish. The traits which were selected showed little similarity to the traits selected by other groups.

In general it seems that Lebanese business men describe stereotypes which

show considerable similarity to the stereotypes of University students in the same city.

F. SUMMARY

In view of the criticisms which have been leveled against studies of stereotypes in classroom situations, it seemed worthwhile to ascertain the stereotypes of a group of non-students. A questionnaire regarding stereotypes was therefore distributed to 130 business men in Beirut. Forty of these did not complete the questionnaire, although it seemed unlikely that an absence of stereotypes was the principal cause of failure to do so. The 90 men who responded seemed to manifest sufficient agreement in their characterization of different groups for one to conclude that they held stereotypes. The stereotypes were quite similar to those which a previous study had shown to be held by university students in Beirut.

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THE COLOR OF THE INVESTIGATOR AS A VARIABLE IN EXPERIMENTAL RESEARCH WITH NEGRO SUBJECTS*

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A. PURPOSE

There has been a rapid increase recently in the publication of books and articles concerned with studies of American Negroes. Many of these studies have been conducted by white experimenters. The purpose of this study was to investigate the effects of similarly trained Negro and white investigators on both children's selections of white and Negro mothers on a pictorial mother-identification test and the verbalized racial or color reactions of these children to the test.

Kardiner and Ovesey (2) worked intensively with 25 New York City Negroes utilizing the psychoanalytic interview technique. The results they obtained were used to construct a general theory of personality development of Negroes. Radke and Trager (3) determined white and Negro children's perceptions of social rôles and the evaluations that these children placed on their respective groups. That Negro children underevaluate their own group was one of the conclusions of these authors. Winslow and Brainerd (4) compared the responses of Negroes on the Rosenzweig Picture-Frustration Test with those of whites used by Rosenzweig in his standardization sample. They reported that there were differences in the responses of whites and Negroes to frustration both when a Negro was the frustrating agent and when a white was the frustrating agent.

In all of these cases, white experimenters examined some facet of the personalities of Negro children or adults. On the basis of the data obtained, conclusions and generalizations were reported. In none of these cases, as far as could be determined, were the following questions adequately and systematically examined by the authors: What is the influence of the color of the investigator on the responses of Negro and white children? If a white and Negro worker are given similar preparation for experimentation, use similar methodology, and work with the same group or a similar group of Negro and white children, will similar results be obtained?

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Heine (1) has suggested, as a result of his experiences in psychotherapy with Negro veterans, that Negroes frequently make a practice of covering up in their relationships with whites in order to maintain reasonably comfortable social relations with them. Heine contends that this behavior is an adaptation by Negroes to what is expected of them by the code that has largely been created by the white majority.

Underlying this study were three related hypotheses: (a) There are differences in the test behavior of white children with white and Negro investigators. (b) There are differences in the test behavior of Negro children with white and Negro investigators. (c) There are differences in the remarks associated with race or color utilizing white and Negro investigators.

An unpublished study by the writer yielded evidence that seemed to support these hypotheses.

B. PROCEDURE

1. *The Test Materials*

A mother-identification test was employed in this study. Nineteen pictures of Negro and white women were initially selected from nationally known magazines: *Life*, *Ebony*, *Colliers*, *Tan Confessions*, and the *Saturday Evening Post*. These 19 pictures of faces were shown to 30 white and Negro judges. The judges were asked to choose three "equally" attractive women, one white and two Negro. It was stipulated that one of the Negro women be decidedly dark-skinned and the other decidedly light-skinned. Three pictures were obtained for use in the test.

The test was a simple one. The three pictures were placed before each subject. The subject was asked only: See these three mothers? Which one is yours? Why?

This short procedure was decided upon as a result of the writer's experiences during the pilot study and in recognition of the short attention span of young children. Such a technique is of interest in itself. The first question (See these three mothers?) immediately established, for the majority of the subjects, a frame of reference of mother and the mother-figure. The second (Which one is yours?) created a forced-choice situation in which the subject selected or refused to select, one of the three "mothers." The last question presented an opportunity for rationalization and justification of the resolution of the forced-choice situation.

"Mother" in this paper was operationally defined as the woman selected by the child as his mother. Color and racial remarks included such comments as: I choose the white one, my mother isn't colored, this is my mother because she is colored like I am, etc.

2. *The Investigators and the Subjects*

Four investigators were employed in the study. Two of the investigators were white, two were Negro. The two Negro experimenters were dark-skinned. The writer was one of the Negro investigators.

The three investigators were trained in one session with the writer. They were asked to show the pictures to each child individually, to control their overt responses to the children's choices and explanations, and to accurately record the responses elicited. Each was given practice with the procedure. Questions on the method of showing the pictures, efficiently recording the full responses of the children and reacting to the child who refused to choose, were raised and answered during this session. In order to hold the school pupil-teacher relationship factor as constant as possible, all testing was completed during the first week of the fall term, 1952.

The subjects of the experiment were 81 children enrolled in kindergarten at three public schools. Two of the schools were located in Mount Vernon, New York, and the third in Yonkers, New York. There were 39 white and 42 Negro children. The group consisted of both boys and girls. The age range of the population was from 4 years, 3 months to 5 years, 4 months. The mean age was 4 years, 10 months.

The children in the three schools were from similar backgrounds. Each school was located in a neighborhood in which the housing was of the single dwelling, wooden-frame type. There was little home ownership among the parents of this group. According to reports obtained from home visits by the teachers, in most homes both parents had outside employment. The family sizes represented were large. The median number of children in the families of the 81 subjects was four.

Since there were both Negro and white children at each school, it was decided that each investigator would test a whole class as a unit. The investigator went to each desk, displayed the three pictures, and noted the choices and verbal responses of the child. The pictures were presented in random order. Since an attempt was made to eliminate any talking during the testing procedure, there was little communication between the children during the testing.

C. RESULTS

The analyses of the data may be presented in the form of answers to three questions:

1. Are there differences in the selection of mothers by white children with white and Negro investigators?

The data from the 39 white children are presented in Table 1. This table shows the choices of the white mother, the light-skinned and dark-skinned Negro mothers, and refusals to make a selection.

TABLE 1
NUMBER OF CHOICES OF 39 WHITE CHILDREN WITH WHITE AND NEGRO INVESTIGATORS*

	White mother	Light-skinned Negro mother	Dark-skinned Negro mother	No choice	Total
White investigator	10	9	0	1	20
Negro investigator	12	0	5	2	19

$$*X^2 = 13.43.$$

$$df = 3.$$

$$p = .01.$$

A study of this table reveals some interesting differences in the selections of these subjects. With the white experimenter, 50 per cent of the children selected the white mother and only one subject refused to choose. When tested by the Negro experimenter, 64 per cent of the children chose the white mother while two subjects or 10 per cent did not make a choice. In the selections of the light- and dark-skinned Negro mothers, the differences with Negro and white investigators are vivid. With the white investigator, 9 subjects or 45 per cent selected the light-skinned Negro mother while none selected the dark-skinned Negro woman. However, when the Negro investigator conducted the test, no white child selected the light-skinned Negro mother while 5 subjects or 26 per cent of the class selected the dark-skinned Negro mother.

In order to test the significance of these differences in choices of the white children, the chi-square test was applied. The differences were found to be significant at the .01 level.

2. Are there differences in the selection of mothers by Negro children with white and Negro investigators?

Table 2 presents the choices for the white and Negro mothers of 42 Negro subjects.

TABLE 2
FREQUENCY OF CHOICES OF 42 NEGRO CHILDREN WITH WHITE AND NEGRO INVESTIGATORS*

	White mother	Light-skinned Negro mother	Dark-skinned Negro mother	No choice	Total
White investigator	12	5	1	6	24
Negro investigator	3	6	4	0	13

$$*X^2 = 11.02.$$

$$df = 3.$$

$$p = .02.$$

This table reveals interesting differences in selection among Negro children. Half of the Negro children selected the white mother when tested by the white investigator. Six subjects or 25 per cent of the class refused to make a choice. When tested by the Negro investigator, 8 subjects or 44 per cent of the class, selected the white mother. None of the Negro children in this class refused to make a choice.

The Negro children selected both of the Negro mothers more when tested by the Negro investigator. Five subjects or 21 per cent of the Negro children selected the light-skinned Negro mother and one subject or 4 per cent of the class selected the dark-skinned Negro mother when tested by the white investigator. When, however, Negro children were tested by the Negro experimenter, 6 subjects or 33 per cent selected the light-skinned Negro mother while 4 subjects or 22 per cent selected the dark-skinned Negro mother.

To test the significance of the difference in choices of the Negro subjects, the chi-square test was applied. The differences were significant at the .02 level.

3. Are there differences among white and Negro children in verbalized racial or color reactions when tested by white and Negro investigators?

Table 3 contains the number of remarks associated with race or color elicited from 81 white and Negro children by the mother-identification test.

TABLE 3
NUMBER OF REMARKS ASSOCIATED WITH COLOR OR RACE FOR 81 NEGRO AND WHITE CHILDREN

The group	Number of remarks	Per cent of the group
White children-White investigator	0	0
White children-Negro investigator	4	47.5
Negro children-White investigator	0	0
Negro children-Negro investigator	5	38.0

The difference in remarks is rather startling. There were no remarks associated with race or color when the white investigator tested white or Negro children. However, there were racial remarks in both instances with the Negro investigators. The per cents of white and Negro children who gave responses associated with race and color were 47.5 and 38.0 respectively.

Some of the remarks of the white children included: (a) My mother ain't black. (b) My mother doesn't have brown skin. Some of the remarks of the Negro children included: (a) This mother is our race. (b) This one is my color. (c) This one is like we are.

D. DISCUSSION

The results cited above seem decisively to confirm the hypothesis that the color and race of the experimenter is a variable of significance in research with Negro subjects. These data imply that consideration should be given to this variable in order to insure valid results.

The sample size of this study was small. This was caused by the fact that it was necessary to employ similar groups. The use of larger groups of children might complicate the problem of homogeneity of the sample. The sample size, however, limits the generalizations that can be drawn from this study. It would be of great interest to repeat such a study employing a larger sample, subjects from other geographical areas, both light and dark-skinned Negro investigators, and children of different age groups.

While the study illustrates a shift in choices of both white and Negro children a function of the color and race of the investigators, it also demonstrates the phenomenon of "evading the issue." It was noted that none of the Negro subjects refused to identify a mother when tested by the Negro worker, whereas 25 per cent of the Negro children were unable to make a choice when tested by the white investigator. It would seem that this occurrence represents the manifestation of an unconscious attitude and an evasion of the issue. These Negro children resolve the forced-situation by non-committal behavior. The phenomenon of evading the issue is not a rare occurrence in attitudinal research. It is analogous to checking a "don't know" response when the respondent has a well-structured underlying attitude.

The subtle shift of the white children warrants our attention. These children did not choose the dark-skinned Negro mother when tested by the white investigator, yet when a similar group was tested by a Negro investigator, there was an abrupt shift to the dark-skinned Negro mother. In this latter test situation, the light-skinned Negro mother was completely ignored. This phenomenon seems to be a dramatic illustration of the influence of the Negro investigator on white children.

E. SUMMARY

An attempt was made to investigate the influence of white and Negro experimenters on the test behavior of 81 white and Negro kindergarten children. A mother-identification test consisting of three pictures of women, one white, two Negro, was employed. The conclusions of this study may be summarized as follows:

1. There was a significant difference in the selections of white children. When tested by the white experimenter, the children preferred the white mother and the light-skinned Negro mother. When tested by the Negro experimenter, these children preferred the white and the dark-skinned Negro mother.

2. There was a significant difference in the selections of Negro children. When tested by the white experimenter, these subjects preferred the white mother and the light-skinned Negro mother, but when tested by the Negro experimenter, there was a decided shift to the light- and dark-skinned Negro mothers.

3. It was suggested that the shift in the direction of the color of the investigator be considered an important variable in experimentation with Negro subjects.

4. There were no verbalized racial remarks or remarks about the color of the mothers when the Negro and white children were tested by the white experimenters. When tested by the Negro experimenter, 47.5 per cent of the white children and 38.0 per cent of the Negro children gave spontaneous racial remarks.

5. When the Negro children were tested by the white experimenter, 25 per cent of the children avoided the issue by not making a selection. When tested by the Negro investigator, there were no evading responses from the Negro children. There were few evasions, regardless of the investigator, by the white children.

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A STUDY OF THE ATTITUDES OF COLLEGE STUDENTS TOWARD CIVIL RIGHTS*

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A. INTRODUCTION

The purpose of this study was to investigate the attitudes of college students toward the protection of civil liberties, and to see what effect the threat of totalitarian aggression may have had upon these attitudes. It was also thought to explore any differences which might exist in the attitudes of students in various types of curricula.

B. PROCEDURE

One hundred ninety-five students in four different baccalaureate curricula—architecture, engineering, home economics, and art for commerce and industry—at a professional and technical school in the New York metropolitan area were given a questionnaire consisting of 20 statements, each dealing with a separate civil rights issue.¹ Each statement was to be answered either "Agree," "Disagree," or "No Opinion." After completing this process, the students were asked to state briefly in writing the reasons for their answers. They were told not to sign their names, but were asked to give information such as their age, sex, and political preference. Both the questionnaire and the written comments were completed during a class period, and were administered during the last week of September 1951. The questionnaire follows.

1. Communists should have the same right to make public speeches as the members of other political parties.
2. Government authorities should be allowed to ban books and movies which they consider harmful to the public interest.
3. Public school time should not be set aside for the teaching of sectarian religion.
4. State universities would be justified in limiting enrollment by members of racial and religious groups in proportion to their percentage of the state's population.
5. Communists should not be allowed to hold government jobs.

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¹A number of the statements were suggested by the leaflet, "Twenty Questions on Civil Liberties," published by the American Civil Liberties Union.

6. Personal ability alone should determine an applicant's right to a job regardless of his race, religion, or national origin.

7. Poll taxes, white primaries, and other devices sometimes used to restrict the right to vote are never justified.

8. Residents of a neighborhood should be entitled to prevent members of any particular racial or religious group from living there.

9. Trade unions should not be entitled to restrict their membership on the basis of color, religion, or national origin.

10. Parochial schools should be included in government financial aid to education.

11. Communists should not be allowed to teach in schools and colleges.

12. Tests of government employees' loyalty should be required only in jobs where national security is involved.

13. Communist-dominated organizations should not be allowed to furnish bail for prisoners.

14. Movies, plays, and books should be suppressed if they present an offensive characterization of a particular racial or religious group.

15. Private housing developments which receive state assistance should not have the right to refuse tenants on the basis of color, religion, or national origin.

16. Law enforcement officials should have the right to listen in on private telephone conversations whenever in their judgment it is necessary for carrying on their work.

17. Teachers should not be required to sign special non-communist loyalty oaths.

18. Government employees accused of disloyalty should have the right to know their accusers and to cross-examine them.

19. The Communist party should be made illegal in the United States.

20. Fraternities and sororities are justified in using race, religion, or national origin as qualifications for membership.

C. GENERAL RESULTS

As indicated in Table 1, students were almost unanimous in their defense of certain civil rights. Ninety-five per cent agreed that government employees accused of disloyalty should have the right to know and to cross-examine their accusers (Statement 18); this is especially interesting in view of the fact that actual loyalty review procedures of the federal government do not include such a privilege for the accused. Ninety-four per cent agreed that personal ability alone should determine an applicant's right to a job, and that trade union membership should not be restricted along ethnic or religious lines (Statements 6, 9). Well over four-fifths believed that state-aided housing developments should not have the right to discriminate, while

over three-quarters felt that members of a neighborhood should not be entitled to restrict residence on racial or religious grounds (Statements 15, 8). Eighty-four per cent denied the right of state universities to set racial or religious quotas, while over 70 per cent felt that discriminatory practices by fraternities and sororities are unjustified (Statements 4, 20). It is evident that feeling against discriminatory actions was strongest in cases involving a man's right to work and less strong in purely social situations; this distinction was borne out by the written comments.

TABLE 1
PERCENTAGE OF TOTAL GROUP AGREEING AND DISAGREEING WITH EACH STATEMENT
(Pro-Civil Rights Answers Starred)

Statement	Agree	Disagree	No opinion or no answer
1	67%*	27%	6%
2	23.5	70*	6.5
3	64*	29	7
4	10	84*	6
5	77	16.5*	6.5
6	94*	4	2
7	72*	13	15
8	14	77*	9
9	94*	5.5	0.5
10	27	64*	9
11	62	27*	11
12	51*	39.5	9.5
13	30	52*	18
14	32	59*	9
15	87*	6.5	6.5
16	46	45.5*	8.5
17	41.5*	48	10.5
18	95*	3	2
19	32	55*	13
20	18	72*	10

Two statements concerned government censorship of communication media. In answering the more general of the two, over two-thirds of the students would not allow government authorities to keep from the public books and movies which they deemed "harmful" (Statement 2). There was less agreement on the complex question of government suppression of offensive characterizations of particular racial or religious groups (Statement 14), though over half opposed such government action. On the problem of church and state relations, over three-fifths opposed the use of public school time for sectarian religious instruction, while a like number felt that parochial schools should not receive financial aid from the government (Statements 3, 10). The question which produced the most even division of opinion was the

thorny issue of wiretapping, with 46 per cent believing that law enforcement officials should, and 45 per cent that they should not, have the right to listen in on private telephone conversations (Statement 16).

Over a third of the questions dealt with the problem of security from communist infiltration, and in this area students were willing to see restrictions placed upon some traditional freedoms while upholding others. Two-thirds believed that communists should have equal rights to make public speeches (Statement 1), while a little over half opposed making the communist party illegal (Statement 19) and felt that communist-dominated organizations should be allowed to furnish bail for prisoners (Statement 13). However, 77 per cent wished to exclude communists from government jobs, while three-fifths felt that they should not be allowed to teach in schools and colleges (Statements 5, 11). It is questionable whether all 77 per cent would advocate excluding communists from any and all government positions, for on a separate question (Statement 12) just over half believed that tests of government employees' loyalty should be required only in jobs involving national security. There was a decided division of opinion on teachers' oaths, 48 per cent favoring and a little over 40 per cent opposing the requirement of special non-communist loyalty oaths for teachers.

The written comments cast considerable light on student thinking. Those who favored allowing communists freedom to speak, hold government jobs, teach in schools and colleges, and operate a legal political party, usually gave one or more of the following arguments: (*a*) that restriction was contrary to our basic constitutional rights and to our professed belief in freedom of speech and political action; (*b*) that restrictions placed upon one group might be only the first step toward a totalitarian destruction of freedom for all; (*c*) that the public in its political activities and the student in the classroom needed to hear all sides of controversial issues and were fully capable of coming to valid decisions and (*d*) that restriction would have bad practical results—it would make martyrs of the communists, would drive them underground, and make the fight against communism harder rather than easier. Those who opposed teachers' oaths made a particularly strong point of the impracticality and ineffectiveness of this approach to the problem. As the percentages show, however, students found these arguments more compelling when applied to the right to make political speeches than when applied to the right to teach or to hold government jobs. A number made the specific point that students are in a position where they *have* to listen, and therefore should not have communist teachers imposed upon them. Others, however, argued that the instructor's classroom performance should be the only test

of fitness: if he did not propagandize, or if he taught a subject unconnected with political and economic issues, he should be allowed to continue despite personal communist convictions. It is important to note that only one student listed his own sympathy with many of the communists' social aims as his reason for wanting their freedoms protected, although a few expressly doubted the seriousness of the communist menace and therefore the need of any restrictions.

Students who favored restrictions on the rights and privileges of communists argued most frequently that the communist party is inimical to our national welfare and security and has as its ultimate aim the overthrow of our government. Its allegiance to a foreign power was repeatedly mentioned, and it was argued that in the light of these facts its members could not be expected loyally to serve in government jobs and should not be given the chance to influence young people in the classroom. A number of students pointed out specifically that they did not fear Marxist ideas as such, or communism as a philosophy, but did see danger in the existing American communist party as a section of an international conspiracy loyal to the Soviet Union.

The general political orientation of the students is of interest as background for their answers. Politicians may find it significant that of these 195 students, 117 or 60 per cent as yet had no party preference. Of the remainder, 19 per cent were Republicans, 19 per cent Democrats, and 2 per cent adherents of non-communist minor parties. None listed the communist party as his political preference.

D. DIFFERENCES AMONG CURRICULA

It was thought that the different interests lying behind the students' selection of curricula might show up in the attitudes tested here. Numerous previous studies have been made on the relation of different variables to political and social attitudes. Slight positive correlations have been reported between liberalism and intelligence (6, 13), and between liberalism and the amount of information possessed (1, 9, 10, 11), while other investigations have shown that women as a rule are somewhat more conservative than men (5, 6). The relation between a student's choice of curriculum and his politico-social orientation has received considerable attention, with rather conflicting results. Two early studies reported that social science majors were more liberal than students specializing in the physical sciences (2, 3), but a third showed science majors the most liberal, along with philosophy and Bible majors, while students in home economics, art, and music were

the most conservative (5). A recent study at Purdue indicates that good citizenship attitudes vary inversely with the degree of technical specialization (4).

In order to examine possible curricular differences in the present study, each answer on the questionnaire ("Agree" or "Disagree") was given a score of 1 if it indicated support of a civil rights position, e.g., freedom of speech and press, separation of church and state, or freedom from racial and religious discrimination. Each student's score was totaled, and means and medians for each of the four curricula were determined. The authors realize, of course, the controversial nature of many of these issues, upon some of which civil libertarians themselves are in disagreement. They would emphasize that they are not posing any objective "right" or "wrong" answers, but are interested only in investigating attitudes. Therefore on each statement, the answer indicating the broadest civil rights position was scored, that is, the position which provided the greatest amount of personal freedom, the strictest separation of church and state, or the widest opportunity for minority groups. Thus, for instance, in Statement 5, "Communists should not be allowed to hold government jobs," the answer "Disagree" was given the score, while in Statement 3, "Public school time should not be set aside for the teaching of sectarian religion," the score was given to "Agree."

Table 2 shows the comparative scores of the four different curricula. In only one case, the comparison between architects and engineers, was there an appreciable difference, and that not completely significant, i.e., 90 chances in 100 that the difference was a curricular one.⁹ Of the four groups, architecture showed the highest pro-civil rights score and engineering the lowest. Art, for commerce and industry and home economics fell in between and were not significantly different from the high and low groups or from each other.

The difference between architecture and engineering is also indicated when

TABLE 2
COMPARISON OF THE CURRICULUM GROUPS AS TO PRO-CIVIL RIGHTS ANSWERS

Curriculum	N	Mn	σ Mn	CR's for group differences		
				Archi- tecture	Art for Commerce and Indus.	Engi- neering
Architecture	38	14.29	11.53			
Art for Commerce and Industry	91	13.25	12.27	.44		
Engineering	34	11.09	9.44	1.29	.99	
Home Economics	32	12.19	6.72	.95	.56	.35

the highest-scoring and lowest-scoring students in the whole group are examined. In Table 3, the highest-scoring group consists of all students who scored 18 or higher out of 20, while the lowest-scoring group is those who scored 8 or below. Over 18 per cent of the architects and over 13 per cent of the stu-

TABLE 3
COMPARISON OF THE PERCENTAGE OF EACH CURRICULUM IN THE *Highest Scoring Group*

Curriculum	Percentage	CR's for differences between percentages		
		Architecture	Art for Commerce and Indus.	Engineering
Architecture	18.4			
Art for Commerce and Industry	13.2	.72		
Engineering	0.0	2.92	3.77	
Home Economics	0.0	2.92	3.77	0.00
<i>Comparison of the percentage of each curriculum in the lowest scoring group</i>				
Architecture	5.3			
Art for Commerce and Industry	9.0	.78		
Engineering	26.5	2.52	2.16	
Home Economics	6.3	.18	.53	2.32

dents of art for commerce and industry were high scorers, while none of the engineers or home economists were. On the other hand, over 26 per cent of the engineers were among the low scorers as compared with only 5.3 per cent of the architects. As the table indicates, the differences between the percentages of highest scores are significant when architecture and art for commerce and industry are each compared with engineering and home economics.

In order to examine further the differences among curricula, comparisons were made of the answers to each separate statement on the questionnaire. The widest divergence occurred on Statements 5, 11, 17, and 19, i.e., on the right of communists to hold jobs and operate a legal political party. Since some students answered "No Opinion" on each of these (Table 1), the difference between the percentages of "Agree" answers to a particular statement is not necessarily the same as the difference between the percentages of "disagree" answers. In the following cases, significant results were obtained:

On Statement 5, "Communists should not be allowed to hold government jobs," the percentage of students in each curriculum answering "Agree" follows:

Architecture	55.3%
Art for Commerce and Industry	76.9%
Engineering	88.2%
Home Economics	90.6%

In two of these cases the critical ratio of the difference between percentages is significant: architecture compared with engineering (*CR* 3.45) and architecture compared with home economics (*CR* 3.70).

On Statement 11, "Communists should not be allowed to teach in schools and colleges," the percentage of "Agree" answers is:

Architecture	44.7%
Art for Commerce and Industry	54.9%
Engineering	79.4%
Home Economics	84.4%

Again the critical ratio is significant when architecture is compared with engineering (*CR* 3.27) and with home economics (*CR* 3.85), while the comparison of art for commerce and industry with home economics is also (*CR* 3.55).

On Statement 17, "Teachers should not be required to sign special non-communist loyalty oaths," the percentage who "Disagree" is:

Architecture	36.8%
Art for Commerce and Industry	39.6%
Engineering	73.5%
Home Economics	59.4%

Here significant differences show up when engineering is compared with architecture (*CR* 3.37) and with art for commerce and industry (*CR* 3.07).

On Statement 19, "The communist party should be made illegal in the United States," the percentage who "Disagree" are:

Architecture	73.7%
Art for Commerce and Industry	56.0%
Engineering	35.3%
Home Economics	43.8%

The only significant difference here is that between architecture and engineering (*CR* 4.20).

A glance at these results will show that in all four of the above items there is a significant difference when architecture and engineering are compared; this reinforces the other indications of reliable differences between these two curricula. In two items, comparisons between architecture and home economics were significant, and in one item each when art for commerce and industry was compared with home economics and engineering.

E. CONCLUSIONS

1. This student group as a whole supports traditional American civil liberties except where the right of communists to teach and hold government jobs is concerned.

2. On the basis of the three types of comparisons used, students of architecture show a significantly more consistent pro-civil rights position than do students of engineering.

3. Students of art for commerce and industry and students of home economics tended to rank second and third after the architects on the same indices used, although the differences were not always statistically reliable.

4. Major differences among curricula appeared on items dealing with communists' rights to teach, hold government jobs, and operate a legal political party.

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MMPI ABERRATION POTENTIALS IN A NONCLINICAL GROUP*

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A. THE PROBLEM

In a previous paper (2) results were reported of a study in which observed personality characteristics of student nurses were compared with Minnesota Multiphasic Personality Inventory (MMPI) profiles produced by them. Attention was given primarily to ascertaining what characteristics might correlate significantly with high and low scores on the various scales, rather than to a special analysis of student nurses as a pre-vocational group. This paper, however, concerns the latter as representing persons making satisfactory adjustments under partially controlled conditions. The total group was comprised of 137 students (an original sample of 97 and a new one of 40) in advanced practicum training at a VA neuropsychiatric hospital, about 20 being in training at any one time for three-month periods. The MMPI was administered to each upon admission. During their stay eight supervisors recorded impromptu observations and impressions, and rated each on a rating scale based on ward practice—which tended to include their observed behavior in general and personal adjustment as well as the main objective of on-the-job performance. Final grades in the course were based primarily on formal subject-matter test scores and the ward-practice ratings.

B. THE GROUP HAS ELEVATED *Pd*

Our study indicates that student nurses tend to produce a characteristic MMPI profile, with a predominant elevation on the *Pd* scale, and secondary elevations on the *Ma* and *Hy* scales. (The group's mean on *Pd* was 56.53 with a σ_M of 0.74.) Weisgerber's (3) study of 72 student nurses came out with a composite profile having similar features excepting that *Ma* dominated and *Pd* was secondary. We separated our population into three equal sized groups according to ratings on ward practice: highest third, middle third, and lowest third, and computed a composite profile for each of the three

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groups. In each instance *Pd* dominated the profiles. We then separated the population into three equal sized groups according to scores on formal tests, and again the three composite profiles each had a dominant elevation on *Pd*. A further check was made by separating out the 17 students who made a final grade of *A* in the course, and the 18 who made *D*. The relationships still held. Throughout these various comparisons, composite scores on *Ma* and *Hy* shifted in relative positions between themselves and somewhat with other scales, but the highest score was on *Pd* every time. Also, about 34 per cent of the students had individual profiles with *Pd* containing the highest score. Table 1 contains the *T* scores for the groups separated according to ratings on ward practice, and according to scores on formal tests.

TABLE 1

MMPI SCORES VERSUS RATINGS ON WARD-PRACTICE, AND ON FORMAL TESTS

(There were 39 *S*'s in each of the three subgroups under "Ward-practice" and from 45 to 46 in each under "Formal Tests." Twenty *S*'s were not available for the "Ward-practice" breakdown as they had entered the program before numerical ratings were given.)

MMPI Scale	<i>Hi</i>	<i>D</i>	<i>Hy</i>	<i>Pd</i>	<i>Pa</i>	<i>Pt</i>	<i>Sc</i>	<i>Ma</i>
<i>Ward-practice</i>								
Highest	48.1	48.1	53.3	58.6	49.0	51.8	50.7	54.7
Lowest	48.8	48.8	52.3	53.4	50.8	51.6	52.0	51.9
Middle	49.2	48.7	54.8	57.4	51.7	51.5	52.1	53.4
<i>Formal tests</i>								
Highest	48.1	48.3	52.0	54.1	50.5	50.5	51.6	51.6
Lowest	49.7	48.6	55.1	59.7	51.0	53.4	53.4	57.5
Middle	48.2	49.0	53.0	55.9	50.6	50.8	50.6	52.0

C. ELEVATED *Pd* AND *Ma* MAY REFLECT ASSETS

An elevated score on the *Pd* scale seems to represent something favorable to the practice of nursing, or at least for students in training in a neuropsychiatric setting. In Table 1 the mean *T* score on this scale for the highest group on ward practice is more than five points *above* that for the lowest group on ward practice. (The *t* is 2.64, which is within the .05 level of significance.) When achievement on formal tests alone is considered, the relationship is reversed; that is, the highest third in this category has a mean *Pd* score more than five points *below* that of the lowest third. (The *t* is 2.97, which is within the .01 level.) In this light, elevated *Pd* seems able to compensate for poor grade-getting ability in formal tests so far as over-all achievement in student nursing is concerned. The 47 students who had profiles with *Pd* scores being their highest, obtained a composite grade in the course comparable to that of the other students, but their numerical rating

on ward practice averaged 81.0 as compared to 75.6 for the larger portion of the group. An elevated *Pd* may reflect something in the personal backgrounds or personalities which motivates a good proportion of individuals to seek nursing as a career, or that helps them through screening for acceptance as students, or it may reflect something which helps them in the actual work—at least so far as favorably impressing supervisors is concerned. In the previous study we found the following characteristics to be significantly correlated with elevated *Pd* scores: participates actively in group discussions, resistant to suggestions, aggressive, lacks perseverance, not industrious, likes to have responsibilities, adjusts rapidly, has initiative, self-confident, unafraid of mental patients, not shy, doesn't work persistently with assigned patients, enthusiastic.

An elevation on *Ma* seems also to reflect an asset insofar as favorably impressing the supervisors was concerned. Table 1 shows that all composite scores on this scale are somewhat above average. But more noteworthy is the fact that the highest subgroup on formal tests has the lowest *Ma* elevation (51.6) while the lowest subgroup on such tests has the highest (57.5), suggesting that elevated *Ma* in some way tended to compensate for inferior test performance just like elevated *Pd* did, but to a lesser extent. This is further confirmed to some extent by opposite trends for the highest versus lowest subgroups on ward-practice. In the previous paper 16 personality characteristics are listed as correlating significantly with elevated *Ma*, the five with highest significance being: ease of oral expression, participates actively in group discussions, self-confidence, not reserved, initiative. Composite scores on *Hy* are consistently elevated too. High *Hy* correlated significantly with friendliness, cooperativeness and cheerfulness, yet it did so still more with "immaturity."

D. POTENTIAL FOR BEHAVIOR DISORDERS OVERSHADOWS POTENTIALS FOR NEUROSES AND PSYCHOSES

While looking over our accumulation of *MMPI* profiles it was noted that a number of them were abnormal in appearance. So, for special scrutiny all the profiles with one or more *T* scores above 65 were segregated, with the idea of estimating what kinds of diagnostic categories they would be likely to appear under (according to profile shape) should they happen to belong to individuals clinically diagnosed as emotionally ill. There were 43 such profiles out of the total of 137. We used *An Atlas for the Clinical Use of the MMPI* (1) for criteria. We found that our group of 43 cases was overbalanced with profile potential for behavior disorders, underbalanced for psychoneuroses and psy-

choses. About 17 per cent of the total of 968 cases in the *Atlas* are categorized under "B" for behavior disorder. In contrast to this 17 per cent, our elevated profile group contained 67 per cent of profiles with patterns most closely resembling the patterns in the *Atlas* which most frequently represent its behavior-disorder cases. About 45 per cent of the cases in the *Atlas* come under "P," or psychoneuroses. Our group had only 21 per cent psychoneurotic type (*Atlas*) profiles. Approximately 44 per cent of the *Atlas* cases are categorized under "Ps," psychoses; and only 12 per cent of our group had psychotic-type profiles. The inference can be made that those of our population who produced elevated profiles had distinctly more potential for behavior disorders than for psychoses or psychoneuroses, when compared to the population of case histories in the *Atlas*. This is consistent with the elevation on *Pd* mentioned above for the group of students as a whole, as compared to standardization groups.

E. THOSE WITH DEVIANT PROFILES PERFORM ADEQUATELY

Our group of high-profile individuals received as good a composite rating on ward-practice as did the remaining students (about two points higher), and came out with a comparable distribution in grades for the course. And the supervisors noted about the same average number of "positive" personality characteristics as for the remainder (11.0 and 11.1 respectively), and "negative" characteristics (3.9 for both). Hypothetically, if all the students in our study should become involved in situations highly stressful to each of them, a relatively larger proportion of the high-profile group could be expected to present symptoms of mental illness. But at the time of our study this group appeared to have been making as acceptable an adjustment as that achieved by the others.

F. USEFUL TRAITS MAY BE ASSOCIATED WITH "PERSONALITY WEAKNESSES"

The question arises as to how the individuals in this group happened to be functioning as effectively as those with more normal profiles. Wiener's (4) "subtle" and "obvious" keys were applied and this procedure failed to significantly differentiate. However, about 85 per cent of our students had higher scores on the subtle items, suggesting that a control factor of some kind pervaded the whole population including the elevated-profile group. The *K* factor also failed to differentiate. But here again the whole population was loaded with high *K* (mean, 58.6), bolstering the hypothesis of a control factor which included the elevated-profile group. Our previous

study revealed that personality assets as well as liabilities are associated with elevated scores on at least most of the scales. For instance score elevations were found to be significantly related to such traits as persevering, efficient, dependable, participates actively in group discussions, leadership qualities, etc. It seems possible that in addition to a control factor of some kind, such assets may have been functioning to counterbalance, at least in the training situation, for aberration potentials among the student nurses.

G. DEFENSIVE INDIVIDUALS MAY BE BETTER ADJUSTED

While inspecting profiles of the more outstanding students it was noted that some of them not only had high scores among the clinical scales but also elevated scores on *K*. So all the cases were listed in sequence according to magnitude of *K* score and broken down into five subgroups. Then we ascertained how these subgroups turned out on ward-practice, and number of desirable traits minus undesirable ones as noted by supervisors. Table 2 presents the figures.

TABLE 2
SCORES ON *K* AND EVALUATIONS OF STUDENT NURSES BY SUPERVISORS
(Numbers in parentheses are *N*s)*

<i>T</i> score for <i>K</i>	50	50-54	55-59	Below 60-64	65 & up	Below 55	Below 55-64
Rating on ward-practice	73.4 (16)	74.6 (17)	78.1 (26)	77.8 (29)	73.2 (29)	74.0 (33)	77.9 (55)
Desirable minus undesirable traits	4.33 (21)	4.14 (21)	8.06 (33)	9.69 (32)	5.86 (30)	4.24 (42)	8.86 (65)

*Since the present study was done, 46 additional students have completed the course. Of this new group, those who made *K* scores below 55 averaged 77.3 on ward-practice, and those scoring in the 55-64 range averaged 79.6 on ward-practice.

Those groupings which had *K* scores of 55-59 and 60-64 averaged higher on both determinations than did any of the other groupings. The subgroups with below-average *K* and average or just above, showed less in the way of competence in ward-practice and in presenting desirable traits. The same thing obtained for those with very high *K*—above 64. The next to the last column in Table 2 combines the first two columns, representing a score range for *K* in which the students made relatively poor showings. The very last column combines the second two, representing the range in which they show up best. The *CR*'s reached the .01 level of significance for the difference between mean ratings on ward-practice, and between desirable-minus-undesirable traits. (The *CR*'s were 2.95 and 3.23, respectively.)

This sort of patterning is in harmony with Wiener's (4) studies in which

he found that veterans with neuropsychiatric diagnoses who were adjusting outside a hospital, successful salesmen, etc., built up profile scores primarily on subtle items in contrast to hospitalized veterans, unsuccessful salesmen, etc., who admitted more obvious items. Our population of students, when separated into three equal-sized groups arranged according to algebraic *T* scores for subtle-obvious items, revealed different adjustment levels. The middle group (each individual of which had declared more subtle than obvious items but not to an extreme extent) turned out with better ratings on both ward-practice and positive traits than did either group above or below it.

Such findings suggest that an individual who denies personality shortcomings and emotional aberrations to a somewhat greater extent than is usual, may function more productively than the average person. On the other hand however, the individual who goes to the extreme in his denials seems likely to be less efficient. When a clinician examines an *MMPI* profile and finds an elevated *K* score or tries during interviews to elicit deviant material and gets only a little, he may be inclined to consider the subject uncoöperative, as lacking in insight, a poor psychotherapy prospect. Instead, the subject might be showing an asset, some kind of control such as Wiener mentions, a stabilizing factor, or adaptive suppression, etc. At least those individuals among our student nurses who scored as mildly "defensive" on *K* and on the subtle-obvious scales showed up in the practicum training situation as superior to the other students.

H. MALADJUSTMENT POTENTIALS MAY ENGENDER SERVICEABLE COMPENSATIONS

Since we found that an elevated score on *K* is associated more with desirable performance than is the mean on this scale, we decided to investigate the various clinical scales to determine if optimum positions on them might be somewhere other than around the mean *T* score position of 50.² An unexpected finding occurred for five of the scales: *Hs*, *D*, *Pd*, *Pt*, and *Ma*. Groups scoring in the 55-59 range on every one of these scales obtained lower ward-practice ratings than did groups scoring in any other

²An optimum score position reaching the .05 level of significance showed up for only one of the eight scales—*Sc*. The group of individuals with *T* scores within the 45-49 range on this scale obtained higher ward-practice ratings and were credited with higher ratios of positive traits than groups falling within any other range. In fact the group made better showings than did a group of individuals hovering close around the midpoint on the scale. (The optimum *T* score was 47, but there were only a few cases with exactly this score.) In other words, those individuals who had a little less than average schizoid potential as measured by the *MMPI*, tended to show up better in the practicum situation than did those with average, or more than average, or very little potential.

range studied, including a higher one. Table 3 presents the mean ratings on ward-practice for successive score ranges. For purposes of this table, the individual's score is based first on her averaged *T* scores for *Hs*, *D*, *Pd*, *Pt*, and *Ma*. The difference between the mean ward-practice rating for

TABLE 3

SCORES ON *Hs*, *D*, *Pd*, *Pt* AND *Ma*, AND RATINGS ON WARD-PRACTICE

(The second row presents mean ward-practice ratings in terms of *S*'s mean scores on all five scales. The fourth row presents mean ward-practice ratings for the accumulations of all *T*-scores on each of the five scales.)*

<i>T</i> -score ranges	Below 45	45-49	50-54	55-59	60 & up
W-P ratings for <i>S</i> s	76.6	76.2	76.3	71.4	79.8
No. <i>S</i> s	(12)	(28)	(44)	(22)	(11)
W-P ratings for scores	76.4	76.3	75.5	72.2	76.5
No. cases	(114)	(155)	(140)	(86)	(90)

*A tally has been made on a new group of 46 students who were not included in the study. Means of accumulated scores on the same five scales and ward-practice ratings turned out as follows: below 55—78.1; 55-59—77.4; 60 and above—79.9. (Since these differences and those in Table 3 are based on related measures they need not be as large to be significant.)

the 55-59 range and the 60-plus range has a *t* value of 2.88 which is significant at the .01 level. The mean for desirable-minus-undesirable traits for the 55-59 range was lower than for any other range, but differences between means failed to reach statistical significance. As a check on the dip in ward-practice when based on averaged scores for the five scales, we tried a different computation. This time the *T* score on each of the five scales considered separately was used and tabulated with ratings on ward-practice, and then these tabulations were accumulated or summated. The results are presented in the lower part of Table 3. Again the rating on ward-practice for the 55-59 range is distinctly below that for any of the other ranges, including the higher one.

A similar dip in ward-practice rating occurred for the *Pa* scale, but it did so at a higher point—at around 60 or a little above. The *L* scale also contained a dip within the 55-59 range. (Its consistency in this respect with most of the clinical scales presents another bit of evidence that it has value as a clinical scale.) The *Hy* scale presented a plateau throughout the various score ranges excepting for drops at both ends.

As a tentative interpretation of the dips within the 55-59 ranges, we applied the hypothesis that these scores represent a falling off in personal effectiveness along with increasing maladjustment potential, and that the secondary rises signify the introduction or increase of something to offset more pronounced maladjustment trends. For our original sample of 97

cases we tabulated the frequency of occurrence of the various traits reported by supervisors, with *T* scores of 60 or above on one or more of the five scales, and compared these frequencies with frequencies for the lower *T* scores on these scales. In favor of the high scores the following traits showed up with frequencies sufficiently greater to reach the .05 level: energetic, enthusiastic, industrious, shows initiative, interested in the course, participates actively in group discussions. Tabulations were then made for our new and smaller population. Differences reaching the .05 level occurred for only two traits, but the magnitudes of the other differences approximated those for the original population.

Our data seem to suggest that along with a little more than usual in emotional maladjustment there was a concomitant dropping off in personal effectiveness among our populations of student nurses, but that potential for more extreme maladjustment was compensated for by increased motivation towards personal expression and activity. And this motivation, or whatever it was, seemed to have compensated sufficiently to bring the most maladjusted individuals back up to the general output level of, or higher than, those with no more than ordinary emotional discomfort.

I. SUMMARY

A group of 137 nurses in practicum training was studied for relationships between ratings on ward-practice, scores on formal tests, and *MMPI* profiles. These students tended to produce predominantly elevated scores on the *Pd* scale, with secondary elevations on *Ma* and *Hy*. Such elevations seem favorable in the student practice of nursing, particularly psychiatric nursing. Those students who had the more abnormal looking profiles and perhaps expressed higher potential for maladjustment, tended to produce an overload of profiles representative of behavior disorders, and relatively small proportions representative of psychoses and psychoneuroses. These same students as a subgroup performed as well as the remainder so far as grades and ratings on ward-practice were concerned. In partial explanation of this the operation of some kind of control factor seems plausible, and utilitarian personality characteristics associated with elevated scores or perhaps aberration potentials seem able to compensate for these same potentials. Those students who scored as mildly "defensive" displayed better adaptation than those who produced either scores around average or who scored as highly defensive. As potential for emotional maladjustment (as measured by most of the *MMPI* scales) increased beyond the midpoint, personal effectiveness in the practicum situation started to drop off and then

build up again as maladjustment potential increased further. This secondary increase seemed due to compensation, some of which may have taken the form of increased "personal expression and activity.

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SELF PERCEPTION AND LEADERLESS GROUP DISCUSSION STATUS*

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A. THE PROBLEM

Among situational tests, the leaderless group discussion (*LGD*) technique has found wide acceptance and usage. Many of the studies reported have dealt with validity (2, 5, 10, 13), group size (3), categorization and observers' ratings (4), correlation with paper-and-pencil tests (9), projective tests (12, 16), sociometric techniques (17, 18) and training for leadership (6). Virtually no study has focused on the individual's perception of himself to determine its influence on emergent leadership status; such a study would appear to be important in ascribing the variance in performance encountered when the subjects have similar backgrounds and the topic assigned requires no specialized knowledge. Furthermore, knowledge derived from such a study would be instrumental in sharpening the distinction between high and low performers on the *LGD* and would suggest a more stringent criterion for the selection of job applicants.

B. PURPOSE

The present investigation sought to discover, through a phenomenological approach to personality, whether the person who emerges as the leader of an initially leaderless discussion has a different way of seeing himself from that of the person who does not attain high leadership status. It was hypothesized that the self-concepts of discussion leaders differ from the self-concepts of those who fail to attain high status during the discussion. The "self-concept" has been defined as "a learned perceptual system which functions as an object in the perceptual field" (14). One extension of self-concept theory which accounts for individual-environment interaction has been developed by Bugental (7) and is called the conceptual matrix. The conceptual matrix has been defined as "a learned perceptual system functioning as an organization of the expressed perceptual field and composed of the

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phenomenal self, the phenomenal not-self, and the lines of relationship within and between them." In simpler language, the conceptual matrix refers to the individual's organization of the world and his expressed perception of (a) himself, (b) that which is not a part of himself, and (c) the interrelations of (a) and (b).

The purpose of this study was to compare the conceptual matrices of the persons attaining the highest status during the course of the *LGD* with the persons attaining the lowest status. This comparison was made with the hope of increasing the understanding of the factors which may be discriminated by the observation of *LGD* participants.

C. PROCEDURE

One hundred and forty sorority girls who volunteered to participate in leaderless discussions, were divided into 20 equal groups. Each discussion group contained a representative of one of seven different sororities so that, in general, the girls were strangers to one another. The instructions, discussion topics, and other administrative details have been discussed elsewhere (11). Each participant was rated independently by two trained observers using a standardized checklist. The corrected split-half reliability, an estimate of the extent of agreement between the two raters, was .87. The girls' respective total scores on the checklist were combined to obtain the relative leadership status attained by each of the seven participants of the designated initially leaderless group discussion. Immediately following each discussion the highest or lowest ranked discussant was interviewed; selection was based on a randomized order on which the condition was imposed that half of the subjects would be of the highest leadership status and the other half of the lowest attained leadership status.² To eliminate any possible bias, the interviewer was not informed about the attained leadership status of his subjects until after the completion of the study.

1. The Interview Situation

Since the expressed or verbalized phenomenal field is a means of approximating the "true" field, it was thought desirable to utilize a nondirective approach. The reason for emphasizing this was primarily twofold: (a) The emphasis was on the subject's verbalized phenomenal field and *not* that of the experimenter's, consequently the interviewer had to reduce his own expressions and interests to that of clarifying the feelings expressed by the

²Because of an administrative error, only 18 groups provided subjects for this experiment; thus, 9 *LGD* leaders and 9 *LGD* nonleaders were interviewed.

subject and accepting the statements made by the subject. This also served to reduce the interviewer's participation and maximized the interviewee's. (b) Since the emphasis was on the subject's phenomenal field, the organization and structuring of the interview was left up to the subject. This meant that content played a minor rôle because whatever the subject said revealed something about her phenomenal field; hence, by leaving the major direction of the interview open to the subject she could discuss the things which she felt to be relevant to her at that time.

To insure some orientation and productivity of the interview hour, two directive "openers" were thought to be adequate to focus the attention of the subject upon herself. They appeared to be structured well enough to be used in every interview, but yet their structure was loose enough to permit the subject the freedom of organizing it in her perceptual framework. They consisted of the following:

1. *"What was there about the leaderless group discussion that you liked?"*
2. The *"Who are you?"* technique (8).

Both procedures proved highly effective in getting the subjects to talk about themselves. Each interview was tape recorded; the presence of the microphone did not appear to have any deleterious effect on the spontaneity of the subjects, nor did it appear to influence the content.

2. Analysis of Interviews

The interviewee's responses were divided into units, such as, "the discussion did not interest me," so that generally each unit was an expression of a complete thought. These thought units were assigned to one of four conceptual matrix categories.³

1. This category consists of (a) the self polar category which includes units simply describing the self, and (b) the self—on-self gradient which consists of units in which one aspect of the self is described as affecting another aspect of the self. Examples: "I am considerate" or "My actions are often a source of irritation to me."

2. The self—on-not-self gradient consists of units that describe the manner the self is seen to affect the not-self. Example: "I influenced the discussion."

3. The not-self—on-self gradient consists of units that describe the man-

³In actuality, for reasons of economy and theoretical considerations, six conceptual categories were subsumed under four major classifications.

ner in which that which is not part of the self is seen to affect the self. Example: "She disliked me."

4. This category consists of (a) the not-self polar category which includes simple description not seen as part of the self, and (b) the not-self-on-not-self gradient which consists of units that describe the manner in which one not-self referent is seen to affect another. Examples: "He is tired" or "Practically everyone said quite a bit in the discussion."

Each category assignment was further evaluated into one of three attitudinal tones: (a) Positive or approving, (b) negative or disapproving, and (c) descriptive or lacking in definite affective tone. The 12 possible combinations of conceptual categories and attitudinal tones constituted the modified conceptual matrix as used here. Throughout the thought unit determination, categorization, and attitudinal evaluation an attempt was made to keep within the psychologically explicit level.

To obtain an estimate of the reliability of assigned ratings, two raters independently rated five minutes out of each interview session. By correlating the total frequencies with which each rater assigned each interviewee's responses into each of the 12 possible classifications, an average correlation of .85 was obtained between raters.

D. RESULTS

The combined conceptual matrices of 9 *LGD* leaders and 9 *LGD* nonleaders are shown in Table 1 where the data are presented in terms of the total responses made by leaders and nonleaders on each presentation and combination of tones and categories. Differential productivity between leaders and nonleaders per classification is emphasized by the leader/nonleader ratio on the same table. The range of thought units expressed was from 487 to 780 with a mean of 641.56 for leaders, as compared to the nonleaders whose expressed thought units ranged from 234 to 718 with a mean of 417.67. Overall, leaders expressed one and one-half times as many thought units as nonleaders. This was significant at the 1 per cent level.

Other differences were subjected to a series of Chi square analyses; it was assumed that no systematic or biasing variations in frequencies existed among the 9 leaders or among the 9 nonleaders. The three first-order interactions, leader vs. nonleader, conceptual category, and attitudinal tone of category assignment were significant beyond the 1 per cent level. The second order interaction, between the three modes of classification, was significant beyond the 1 per cent level. From these tests of significance it was inferred that the attitudinal evaluation of a response was dependent upon whether the re-

spondent was a leader or nonleader, and was also dependent upon the conceptual category under discussion.

E. DISCUSSION

Leaders expressed more thought units per interview hour than did nonleaders. This suggests a greater "verbalized phenomenal field," which, in turn, suggests greater tolerance for exposing that field. It is of particular interest since it demonstrates that a different structuring of the situation (interview) took place. Leaders were able to structure an unfamiliar situation much more quickly than nonleaders and consequently there was a significant quantitative difference in thought units expressed. This was very apparent in the interview situation itself, for the leaders, on the whole, sized up the situation quickly and took command of the interview hour. The nonleaders tended to be uncertain about the situation ("what is the whole purpose of this?"), tended to shift responsibility to the interviewer ("tell me what to say"), tended to question the investigator's motives ("I bet that you are going to play this to all of your friends, and they are all going to sit around and laugh"), and tended to determine the status of the investigator ("are you a professor, or something?").

Snygg and Combs (15) have stated that there is a restriction of the phenomenal field when the individual feels himself under threat, and the probability existed that nonleaders perceived the situation to be more threatening than did the leaders. Consequently there followed a restriction of the phenomenal field and a less active interaction with the environment. This restriction of the phenomenal field, and the attending reduction of the expressed field, made it necessary for the nonleaders rigidly to structure the situation. Structuring was a time consuming process in that it reduced effective interaction with the environment until complete familiarity with the demands of the situation took place. The same hypothesis could be applied to the leaderless group discussion. The person who emerged as the leader probably did not perceive the situation as being a threat to her, and therefore had no difficulty in adequately defining her rôle in that situation. The girl who emerged with the lowest status probably perceived the situation as being potentially threatening; by restricting her phenomenal field she was unable to define her rôle in the situation. Transferring from the experienced success situation, the leaders were, in all probability, able to quickly shift some of its affects on the interview situation. The nonleaders, if they perceived the LGD as threatening or their performance as poor, shifted the same attitudes to the interview.

Further differences existed within the phenomenal fields of those who attained high *LGD* status and those who attained low *LGD* status. These differences are more apparent when the comparison is drawn between leaders and nonleaders in each one of the areas of the conceptual matrix:

1. The first area under investigation is the self polar category and the self—on-self gradient. This area of the matrix is considered to be the core area of self-perception and appears to be the most protected portion of the phenomenal field; it constitutes both past and present thinking about the self. Leaders expressed twice as many positive statements about their perceived selves and their own affect on themselves than negative statements. Nonleaders expressed about the same number of negative statements about themselves as positive. This area was the least talked about in the matrix but nonleaders talked less about it than leaders; it was probably the most revealing in showing the cause of differential performance on the *LGD*. Nonleaders frequently expressed "I am not a leader." In view of self-concept theory, the perception of not being a leader and attaining low *LGD* status cannot be minimized. The least talked about area in the entire conceptual matrix can be found here, but whereas leaders would talk *least negatively* about themselves, nonleaders would talk *least positively* about themselves. In other words, leaders tended to have a more favorable opinion of themselves; unfavorable opinions occupied the smallest area in their phenomenal field; in contrast, nonleaders tended to perceive favorable attitudes about themselves to be the smallest area of their phenomenal field.

2. The self—on-not-self area showed that leaders made more than four times as many positive statements as negative ones, whereas nonleaders made less than three times as many positive statements as negative ones. This area is not within the self-concept because the reference point is away from the self. The self is here perceived as affecting things outside of the self. It plays a rather important part in understanding the phenomenal field of a subject because in this area are revealed the individual's perception of his affect on others. A comment from a protocol of a nonleader demonstrated this poignantly: "I don't expect other people to see much in me!"

3. The not-self—on-self area showed that leaders made more than twice as many approving statements as disapproving, whereas nonleaders made slightly less than two approving statements to every disapproving. No differences were observed for this category on the use of negative tones. This area within the conceptual matrix probably represents the greatest source of contact with the environment and represents the perception of the affect

which the phenomenal not-self makes upon the self. Leaders, therefore, perceived a proportionately larger number of things, people, etc., to affect them pleasantly, while they also perceived about the same negative affect in this category as did nonleaders.

4. In the last area of the conceptual matrix, the not-self—on-not-self gradient and the not-self polar category, leaders and nonleaders differences were also apparent. Leaders tended to perceive a smaller positive affect and a smaller negative affect than nonleaders. This area is not within the self-concept; it represents the world as it is phenomenally perceived. Although there is no direct linkage, this area serves as a backdrop to self-perceptions since strong affect will eventually influence the self. The fact that leaders perceive this area as less emotionally charged, further enforces the hypothesis that they perceive the situation as less threatening.

In summary, analysis of the conceptual matrices of leaders and nonleaders showed that there were distinct differences in the organization of their respective phenomenal fields. Leaders tended to have more positive attitudes toward themselves, tended to perceive others' affect on them to be more positive, and tended to perceive the world with a lower positive affect than nonleaders. Leaders perceived themselves less negatively, they perceived their affect on others less negatively, and they perceived the world less negatively. Various indices of the conceptual matrix suggested that leaders perceived a lack of threat in the situation, and more importantly it suggested an active, outgoing, or maybe even an extravertive trend; nonleaders higher on the last conceptual category hinted at a passive, spectator type of rôle.

There was a further qualitative difference between leaders and nonleaders which the conceptual matrix patterns do not show. Nonleaders in the interview tended to express much stronger negative feelings than leaders. For example, "I hate . . ." and "I dislike . . ." receive the same negative ratings and therefore do not convey the intensity of the feeling perceived and expressed.

Further support of phenomenal field differences came from the content matter of the interview itself. Nonleaders tended to be much more restricted in the material they talked about than leaders. Nonleaders tended strongly to identify themselves with the group to which they belonged, i.e., the sorority; they tended to be more prejudiced toward out-groups; and they tended to think more in stereotypes. There is a strong suggestion that the nonleader's phenomenal field closely approximated the phenomenal field of the authoritarian personality (1).

F. SUMMARY

This investigation sought to discover, through a phenomenological approach to personality, whether the emerged leader of an initially leaderless group discussion had a different way of seeing himself than the person who did not attain high leadership status. It was hypothesized that differences would exist and that they could be ascertained by the conceptual matrix method. The latter was defined as "a learned perceptual system functioning as an organization of the expressed perceptual field and composed of the phenomenal self, the phenomenal not-self, and the lines of relationship within and between them" (7).

Subjects were nine sorority girls who attained the highest discussion status and nine who attained the lowest discussion status in their respective 7-member discussion group. Each subject was interviewed for one hour; each interview was tape recorded.

Interviews were subjected to a conceptual matrix analysis. Results showed that leaders expressed a significantly greater number of response units which suggested a greater tolerance for exposing the phenomenal field. This was interpreted to mean that nonleaders experienced more threat and as a consequence a restriction of their phenomenal field took place. This is in accord with other phenomenological studies. It was further proposed that status differences on the *LGD* might be due to the same phenomenon.

Significant differences between leaders and nonleaders were also found on tone. Leaders perceived more favorable affects when talking about themselves, their affect on others, and others' affect about the world than did nonleaders. Nonleaders were higher in negative tone than leaders.

In the interview situation itself, leaders demonstrated greater flexibility in regard to subject matter, attitudes, and beliefs.

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SHORT ARTICLES AND NOTES

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THE INTERPRETATION OF THE *MMPI* PROFILES OF COLLEGE STUDENTS: MEAN SCORES FOR MALE AND FEMALE GROUPS*

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A. THE PROBLEM

Numerous articles have been written concerning the use of the *MMPI* in counseling with college students; at the present time it is the most widely used question-and-answer clinical personality test at the college level. In years of use of the *MMPI* in counseling and therapy with college students, the author was struck by the fact that the majority of referrals had scores considerably above average. This elevation of scores would be expected, naturally, since students who are referred for counseling generally have difficulty in adjusting; however, there did appear to be an inordinate number of high profiles, and other counselors noted a similar trend and stated similar beliefs.

B. PROCEDURE

In order to determine if these high scores could be a function of referral *per se* or a function of "college student status," a survey was made of the *MMPI* scores of the entering students for two consecutive Fall semesters. The term "entering students" used in this context includes all freshman students coming directly from high school and "transfer" students. "Transfer" students are those who have had previous schooling at the college level who may transfer as freshmen, sophomores, juniors, or even as seniors. The group form *MMPI* was administered, and standard scores computed in accordance with the latest profile sheet. No profiles were eliminated because of the validating scales; this is not intended to imply that all of the records are "valid," but that all records should be taken into account in order to ascertain what the "average" profile presents. Means and standard deviations for the clinical scales were computed for both men and women students and are presented in Table 1.

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C. RESULTS

The results presented in Table 1 indicate that the mean *T*-score for college males is above 50 on all clinical scales, although these differences from the mean 50 are not all statistically significant. Mean scores for college

TABLE 1
MEAN STANDARD SCORES ON *MMPI* SCALES FOR COLLEGE STUDENTS
Men (*N* = 707) Women (*N* = 763)

	Mean	Standard deviation	Mean	Standard deviation
Hs	52.54	8.25	49.69	5.91
D	53.05	9.96	49.69	8.01
Hy	56.26	7.68	54.46	7.20
Pd	55.90	9.99	54.67	8.73
Mf	58.03	11.61	49.54	9.33
Pa	51.22	7.59	52.72	7.41
Pt	54.55	9.27	53.17	7.41
Sc	55.45	9.27	53.98	7.11
Ma	56.59	10.14	54.07	9.72

female students are closer to 50 than those for males, and all mean scores for females are lower than mean scores for males except paranoia. This could be interpreted to mean that college students are more maladjusted than the "average." However, since college students range from average to superior intelligence with a mean of "bright normal," and intelligence and "good" adjustment are positively correlated, it should not be concluded that college students are necessarily more maladjusted. Other interpretations seem possible, such as: (a) The "normal" group on which *MMPI* standard scores are based was a "better-than-normal" group. (b) College students answer questions differently to a degree that would make it necessary to establish separate norms for them when comparison (with diagnosed abnormals, etc.) are to be made.

Certainly the mean scores presented above, particularly on some scales, make it necessary to take such data into account in interpreting profiles of college students when comparing them with normals or when comparing a profile with the profile of another college student. Gough (1) and Meehl (3) have stressed the importance of the patterning of the subscales, but this does not negate the importance of taking into account such single score discrepancies as occur on some of the profiles of college students.

For the purpose of interpreting the profile of a college student in relation to his own group it would be advisable frequently to note the scores computed from the data in Table 1 which would place a student one or two standard deviations above the mean in his own population. Rounded off to

integers, these scores for college students would be as indicated in Table 2.

For interpretative purposes, therefore, one must adjust his "critical score" level to these extra-normal distributions, especially for male student profiles.

TABLE 2

	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma
<i>Male students</i>									
One standard deviation above mean	61	63	64	65	69	59	64	65	67
Two standard deviations above mean	69	73	72	75	83	66	73	74	77
<i>Female students</i>									
One standard deviation above mean	56	58	62	63	59	60	61	61	64
Two standard deviations above mean	62	66	69	72	68	68	68	68	74

This is especially true for the *Mf* distribution for men, in which 37 per cent score above 60 and 16 per cent score 69 or higher, and the *Ma* distribution in which 11 per cent score 69 or higher. On the other hand, for women in the *Hs* distribution less than two per cent score 66 or higher and only 7 per cent score 60 or higher. These are only samples of the adjustment which a counselor must make in fitting his interpretation of the *MMPI* profile to the population with which the college student must be compared. Whatever the reason may be offered to explain the variance in profile, college students do vary significantly from the *MMPI* normative group.

D. SUMMARY

Mean scores were computed on the *MMPI* for 707 male and 763 female students entering college. A number of the mean scores vary from the normative group to a degree which would make necessary an interpretation of the profiles of college students in terms of their own group, a college population.

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RELATIONS BETWEEN THE SOCIAL-CLASS IDENTIFICATION AND PERSONALITY ADJUSTMENT OF A GROUP OF HIGH SCHOOL AND COLLEGE STUDENTS*

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It is the purpose of this paper to report the results of an investigation of the relations which exist between social class identification (as measured by the writer's *SCI* Occupational Rating Scale) and aspects of personality adjustment (as measured by the Bell Adjustment Inventory) in a sample of 290 high school and college students. The study is one of a series which are designed to throw light on the relation of social class identification to other psychological characteristics of people, to the end that we can better evaluate the social and psychological significance of subjective class identification (1, 2, 3, 4, 5).

Bell's Inventory is well-known enough to need no description. Published evidence on its validity has been conflicting, but for our purposes it seems safe to accept it as, at least, a crude measure of personal adjustment. The *SCI* scale is an instrument by means of which a numerical expression of the status which one assigns himself in our social hierarchy is obtained. Its construction and validation are described elsewhere (6). The evidence appears sufficient to justify the assumption that the scale does reveal the social class with which one unconsciously identifies himself.

These two tests were administered to 127 seniors in a large urban high school and to 163 freshmen and sophomores in a southern state university. The statistics reported here were calculated from this population. Since no significant differences were found between the two groups, they are treated as one population.

Our first effort to establish the nature of the relationship between the two variables was to calculate product-moment coefficients of correlation between raw scores on the inventory and on the *SCI* scale. Bell's inventory yields five scores: home adjustment, health adjustment, social adjustment, emotional adjustment, and total adjustment. Correlations between *SCI* and each of these scores were calculated. Since the norms on the adjustment in-

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ventory differ for the sexes, separate coefficients for men and women, in addition to those for the total population, were run. These coefficients are reported in Table 1, with their statistical significance indicated.

As can be seen from examination of the table, all of the coefficients are

TABLE 1
COEFFICIENTS OF CORRELATION BETWEEN *SCI* AND BELL ADJUSTMENT SCORES

Number of cases	Men 103	Women 187	Total 290
<i>SCI</i> with:			
Home Adjustment	.20*	.22**	.25**
Health Adjustment	.13	.04	.01
Social Adjustment	.31**	.37**	.32**
Emotional Adjustment	.09	.15*	.04
Total Adjustment	.20*	.24**	.18**

*Significant to the five per cent level of confidence.

**Significant to the one per cent level of confidence.

positive; that is, in every case, the higher the social class with which the students identified themselves the better their adjustment. The closest relationship was between class identification and social adjustment, but the relations of *SCI* to home adjustment and to total adjustment, for the men and women separately as well as for the total, were statistically significant to the 5 per cent level of confidence or better. The other relations were too slight to be considered significant.

Inspection of the scattergrams for the correlations showed that most of the traits, as measured by the tests, were not normally distributed,¹ nor were the relations in every case clearly linear. These facts, plus the above mentioned sex differences in scores on the adjustment inventory, indicated a need for further check on the nature of the correspondence between scores on the two tests.

When the relation between two variables is non-linear, the correlation ratio is usually considered a better measure of relationship than is the product-moment coefficient. We have, therefore, calculated such ratios, both for the regression of adjustment on *SCI* and of *SCI* on adjustment, and for men and women separately as well as for the total population. These ratios are reported in Table 2.

All of the ratios² except one (the regression of *SCI* on health adjustment

¹Tests of the statistical significance of skewness for the 18 distributions showed that in nine of the distributions the skewness was significant to the one per cent level of confidence; four others were significant to the five per cent level. Only the total adjustment scores for men, the emotional adjustment scores for women, and the three distributions for social adjustment were not significantly skewed.

for the total population) were statistically significant to better than the one per cent level of confidence. Again we find the correlation between social adjustment and *SCI* to be highest, with home adjustment, and total adjustment, next in order.

TABLE 2
CORRELATION RATIOS BETWEEN *SCI* AND BELL ADJUSTMENT SCORES

	Regression of adjustment on <i>SCI</i>			Regression of <i>SCI</i> on adjustment		
	Men	Women	Total	Men	Women	Total
<i>SCI</i> with:						
Home Adjustment	.37	.47	.30	.28	.37	.29
Health Adjustment	.29	.36	.27	.31	.31	.11*
Social Adjustment	.41	.49	.36	.34	.48	.39
Emotional Adjustment	.40	.32	.20	.38	.29	.19
Total Adjustment	.38	.38	.26	.35	.28	.25

*All ratios except this one have statistical significance to the one per cent level of confidence or better.

The correlation ratios are seen to be consistently higher than the corresponding product-moment coefficients, which is to be expected when the relations being measured are not linear. The ratios were, however, not enough higher for us to assume that the seeming curvature in regression was the result of anything other than chance. Application of Fisher's test of non-linearity showed that in no case was the departure from a straight-line relationship significant to as much as the 5 per cent level of confidence. It seems safest, therefore, to conclude that in those cases where we have a relation between *SCI* and adjustment, this relation is probably linear. That is, the higher the class identification the better we can expect the adjustment to be.

Finally, in order to get some estimate of the possible influence on our findings of the skewness of the distributions and the sex differences in the adjustment scores, we undertook to interpret the raw scores on both tests in terms of the reported norms, and make chi-square tests of the correspondence between the two variables so expressed. The chi-square test seemed appropriate for this purpose, not only because it is distribution-free (that is, does not make the assumption that we are dealing with a "normally" distributed population), but also because it lends itself to the investigation of relationships between attributes which are classified categorically rather than numerically, and in the case of both instruments used here the norms are categorical. "Standard scores" on the inventory are expressed in categories as follows: *excellent*, *good*, *average*, *unsatisfactory*, and *very unsatisfactory* adjustment. The *SCI* score is interpreted by naming the social class with which a particular score indicates affiliation. The following classes were repre-

sented in our sample: *upper*, *upper-middle*, *middle*, *working-middle*, and *working*.

Set up in tabular form, our data would thus yield a five-by-five double-entry, or "continuity," table; but in order to increase the size of the cell frequencies for making the chi-square tests (since to do so increases their reliability), we further reduced the data to a three-by-three table. This was done, for the Inventory, by combining the category *excellent* with *good*, and *unsatisfactory* with *very unsatisfactory*; and, for the *SCI* scale, by combining *upper* class with *upper-middle*, and *working* class with *working-middle*.

Table 3 reports the chi-square tests of the correspondence between *SCI* and each of the five measures of adjustment for the total population, with an indication of the significance of each.

TABLE 3
CHI-SQUARE TESTS OF THE SIGNIFICANCE OF THE RELATIONS BETWEEN *SCI* AND BELL
ADJUSTMENT SCORES (TOTAL POPULATION)

<i>SCI</i> with:	Chi-Square
Home Adjustment	11.75*
Health Adjustment	1.71
Social Adjustment	25.18**
Emotional Adjustment	6.51
Total Adjustment	9.01***

*Significant to the two per cent level.

**Significant to the one per cent level.

***Significant to just under the five per cent level.

Here our findings agree closely with what we found through use of the product-moment correlations. Social adjustment is very surely related to *SCI*; adjustment to the home is significant to the two per cent level of confidence; and total adjustment to just under the five per cent level. The other two aspects of adjustment are not significantly related to *SCI*.

In summary, for a sample of high school and college students, we have made three statistical tests (product-moment correlations, correlation ratios, and chi-square tests) of the relation between social class identification and the aspects of personality adjustment measured by the Bell Inventory. The reader can have his pick of the statistics. Although there is some disagreement among the three approaches, there are, also, certain points of agreement. There seems little doubt that, so far as the population sampled here is concerned, social class identification is an important positive correlate of what Bell measures as social adjustment; and, to a lesser degree, the same relation exists between *SCI* and home adjustment. The evidence for the other two aspects of adjustment is contradictory, but total personality adjustment,

as measured by this instrument, also, appears to be positively related to class identification.

It would seem unwise to generalize too far beyond our data. High school and college students represent a selected group, and it may be that the factors of selection are not consistent throughout the range of either class affiliation or adjustment. It may even be that the validity of a self-inventory varies with class affiliation. It may well be, too, that the high school-college environment is peculiarly appropriate for affiliates of middle and upper social classes. At present, such matters are for speculation only. Our findings do, however, point to the desirability of more extensive investigation of the relation between social class identification and personality adjustment generally.

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THE NUMBER OF COMPLETE CYCLES IN A COMMUNICATION NETWORK*

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A. INTRODUCTION

There are many problems of theoretical and practical interest associated with communication networks or, equivalently, sociograms. We wish to deduce a criterion for the existence of a path in a network such that a rumor or some item of information initiated by any member of the group will return to him after having passed through each of the other persons exactly once. Such a path will be called a *complete cycle*. We solve this problem by presenting a theoretical formula for the number of complete cycles in any communication network.

Our formula is based on previous work (5) on the determination of the number of redundancies in sociometric chains. The result in (5) is expressed in terms of the matrix approach to the analysis of sociometric data discussed in (1) and (2).

The question of the existence of a complete cycle in a network is closely related to a well known unsolved problem in the mathematical theory of graphs (3, 4). This mathematical problem is the determination of a criterion for the existence of a Hamilton line; i.e., a complete cycle in a graph. In (5) we have obtained explicit formulas for the matrices of s -step paths through $s = 6$. Therefore, by the nature of the formula presented here, we are enabled to count explicitly the number of complete cycles in any network of up to 7 people. Translating this observation to the language of graph theory, we see that we can count the number of Hamilton lines in any graph, directed or ordinary, of up to 7 points.

B. DEFINITIONS AND NOTATION

As defined in (5), a redundant path is one in which at least one person occurs more than once, and a pure path is one which is not redundant. Let n be the number of people in the group. Let M be the sociometric n by n

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matrix of one-step paths in the group. Let the elements of the matrix M be denoted by m_{ij} , where $m_{ij} = 1$ if the i 'th person communicates with the j 'th person and is 0 otherwise. We adopt the convention that a person does not communicate to himself.

Let P_s denote, as in (5), the matrix of pure s -step paths. Let the elements of P_s be $p_{ij}^{(s)}$ where $p_{ij}^{(s)}$ is the number of pure s -step paths from the i 'th person to the j 'th person. In (5), explicit formulas were found for the matrices P_3 through P_6 in terms of the matrix M , and in addition a method was developed for finding any P_s given through time.

If Q is any n by n matrix, then by $d(Q)$ we mean the matrix obtained from Q by leaving the principal diagonal of Q unchanged and replacing all non-diagonal elements of Q by 0. If Q and T are n by n matrices, then by $Q \cdot T$ we mean ordinary matrix multiplication.

C. THE THEOREM

Our result is contained in the following theorem: *The number of complete cycles in a communication network is the number appearing in each of the principal diagonal locations of either of the matrices $d(M \cdot P_{n-1})$ or $d(P_{n-1} \cdot M)$.*

It will be seen during the proof of this theorem that the matrix $M \cdot P_{n-1}$ has in each of its principal diagonal locations the number of complete cycles in the given communication network, i.e., the network whose sociometric matrix M consists entirely of zeros, it follows that $m_{11} = 0$ and hence the to be identical.

Proof: Using the notation of the preceding section and the usual definition of matrix multiplication, we obtain for the 1, 1 element of the product matrix $M \cdot P_{n-1}$ the sum:

$$(1) \quad m_{11}p_{11}^{(n-1)} + m_{12}p_{21}^{(n-1)} + m_{13}p_{31}^{(n-1)} + \dots + m_{1n}p_{n1}^{(n-1)}.$$

However, by our convention that the principal diagonal of the sociometric matrix M consists entirely of zeros, it follows that $m_{11} = 0$ and hence the first term of the above sum vanishes.

Consider now the second term, $m_{12}p_{21}^{(n-1)}$. The number $p_{21}^{(n-1)}$ is precisely the number of pure paths from the 2nd person to the 1st person passing through all of the other persons of the n -person group. Hence the second term, $m_{12}p_{21}^{(n-1)}$, is the number of complete cycles in which the 1st person communicates to the 2nd person. Similarly, the next term, $m_{13}p_{31}^{(n-1)}$, is

the number of complete cycles in which the 1st person communicates to the 3rd person, etc.

Therefore the entire sum (1) is the number of complete cycles in which the 1st person communicates to any other person, i.e., in which the 1st person is involved. Thus this sum (1) must be the total number of complete cycles in the given communication network.

The remaining elements of the principal diagonal of the product matrix $M \cdot P_{n-1}$ are all equal to this first element, since each of them is also the number of complete cycles. The same cycles are merely counted from different starting points.

An entirely analogous argument shows that the principal diagonal of $P_{n-1} \cdot M$ is the same as that of $M \cdot P_{n-1}$.

D. ILLUSTRATIONS

We shall now give three examples of graphs or communication networks (Figure 1) and apply the above theorem to their matrices. The first two of these graphs (A and B) are ordinary graphs and therefore have symmetric matrices. The third graph (C) is directed and its matrix is not symmetric.

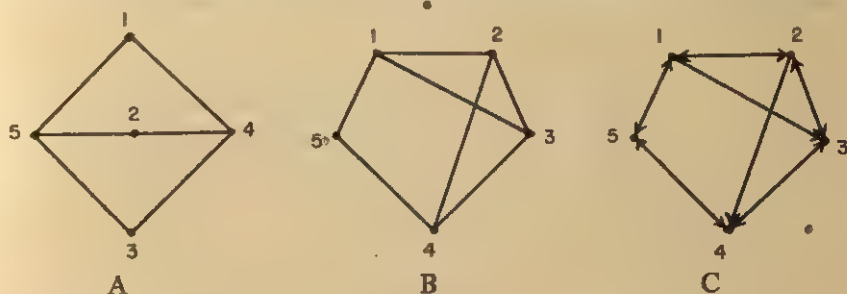


FIGURE 1

Let the matrices of these three graphs be M_1 , M_2 , M_3 , respectively. Then we have:

$$M_1 = \begin{bmatrix} 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 \\ 1 & 1 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 \end{bmatrix} \quad M_2 = \begin{bmatrix} 0 & 1 & 1 & 0 & 1 \\ 1 & 0 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 & 1 \\ 1 & 0 & 0 & 1 & 0 \end{bmatrix} \quad M_3 = \begin{bmatrix} 0 & 1 & 1 & 0 & 1 \\ 1 & 0 & 1 & 1 & 0 \\ 0 & 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 1 \\ 1 & 0 & 0 & 1 & 0 \end{bmatrix}$$

Let R_s be the matrix of redundant paths of length s . The matrix P_s of length s may be obtained by appropriately subtracting R_s from the matrix of all paths of length s which is the s 'th power of M , i.e., M^s . If Q , T are n

by n matrices, let $Q \times T$ denote elementwise multiplication, as in (5), and let Q' denote the transpose of Q . Then it was shown in (5) that:

$$R_3 = M \cdot d(M^2) + d(M^2) \cdot M - M \times M'$$

$$R_4 = M \cdot d(M^3) + d(M^3) \cdot M + M^2 \cdot d(M^2) + d(M^2) \cdot M^2 \\ + M \cdot d(M^2) \cdot M - M \times M' - 2M \times M' \times M^2 - M \cdot (M \times M') \cdot M$$

The formulas for R_5 and R_6 are much longer and appear in (5).

Let $P_4^{(1)}$, $P_4^{(2)}$, $P_4^{(3)}$ be the matrices of pure paths of length 4 corresponding to M_1 , M_2 , M_3 respectively. A straightforward calculation shows that the matrices $M_1 \cdot P_4^{(1)}$, $M_2 \cdot P_4^{(2)}$, $M_3 \cdot P_4^{(3)}$ have main diagonals consisting entirely of 0's, 4's, and 3's respectively. Thus the network of Figure 1A has no complete cycles, as can be verified by inspection. The ordinary graph of Figure 1B has four complete cycles because the direction of the cycle is taken into consideration by this theorem. If direction is ignored, this graph has two complete cycles. Finally, the third network has three complete cycles.

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CONFORMANCE AND PERFORMANCE*

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Two measures were made of 14 high school basketball teams in the 1951-1952 season. One of these was a sociometric preference inventory. The second was a multiple-choice self-attitude test.

The sociometric questions asked each player to choose the three team members with whom he could best cooperate and the three whom he felt least cooperative. A positive first choice was scored 3, a second 2, and a third 1; a negative first choice was scored -3, a second -2, and a third -1. Each player's scores were totaled algebraically.

The self-attitude test consisted of 20 items each of which presented five alternatives. The subject selected that statement among the five which was most like him. After having made this choice he selected the one of the remaining four alternatives which was least like him. Thus, there were 20 most-like-me and 20 least-like-me statements chosen by the subject.

Quantifying these statements was a problem. It was solved in this manner. All subjects were pooled, a total of 178. For every item the frequency of each most- and least-like combination was determined. For example, let the subject choose statement *a* as most like him. He could then select *b*, *c*, *d*, or *e* as least like him. Four combinations are possible: *ab*, *ac*, *ad*, or *ae*. Had he chosen *b* as most like him, he could have made four other combinations: *ba*, *bc*, *bd*, or *be*. Therefore, there were 20 possible combinations for each item. The combinations which actually occurred were ranked from least to most frequent. This rank was assigned as the numerical score for each combination.

The total test score for the subject was the sum of the scores for each of the 20 items. This sum represented the degree to which each subject conformed in his self-attitudes to the total sample of subjects. The greater the score, the higher the conformance. Scores ranged from 127 to 212.

Each team's season record was obtained and the teams were ranked on the

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basis of their percentage of wins. The poorest team (.174) was ranked 14th, the best team (.885) first. These rankings were the criterion to be predicted.

All of the measures taken from the sociometrics and the test were converted to rankings. The sociometric measures (and their respective symbols) are as follows: (+) highest individual score of coöperativeness on the team; (—) lowest individual coöperation score on the team; (*a*) range from the lowest to the highest individual coöperation score on the team; (σ) standard deviation of the team's coöperation scores; and (*d*) absolute difference between the maximum high and low individual coöperation scores on the team. For the total sample the highest individual score of coöperation was 2.43, the lowest was —1.73.

The test of conformity yielded the following measures: (*h*) highest individual conformity score on the team; (*l*) lowest individual conformity score on the team; (*m*) average conformity score of the team; (*g*) range between the highest and lowest individual conformity scores on the team; and (*s*) standard deviation of the team's conformity scores.

Table 1 presents the rank order correlations between each of the measures and the criterion. To obtain a rank for each team on these variables the

TABLE 1
RANK ORDER CORRELATIONS BETWEEN MEASURES AND THE CRITERION OF PERFORMANCE

Measure	Criterion
+	— .30
—	.49
<i>a</i>	— .07
σ	.11
<i>d</i>	— .40
<i>h</i>	— .35
<i>l</i>	— .19
<i>m</i>	— .61
<i>g</i>	— .14
<i>s</i>	.10

particular individual score for every team was obtained and the teams ranked on that basis. For example, the (+) highest individual score of coöperativeness was determined for each team. The teams were ranked accordingly. These ranks were correlated with the ranks of the teams on the performance criterion. This is the manner by which each of the correlations was obtained.

Table 2 is a matrix of rank order correlations between each of the measures which were most highly related to the criterion.

TABLE 2
RANK ORDER CORRELATIONS AMONG MEASURES HIGHLY RELATED TO THE CRITERION

Measures	+	—	d	h	m	Criterion
+		— .04	.77	.13	.03	— .30
—			.47	.35	.75	.49
d				.14	.33	— .40
h					.50	— .35
m						— .61

The data are summarized in the following statements:

1. High coöperativeness (+) is inversely related to the criterion of performance (— .30).
2. Low degree of uncoöperativeness (—) is directly related to the criterion of performance (.49).
3. A wide range of coöperativeness (d) is inversely related to the criterion of performance (— .40).
4. Low average conformance (m) is inversely related to performance (— .61).
5. Low conformance (h) is inversely related to performance (— .35).

The sociometric measures and the method of scoring a self-attitude inventory to yield a conformance score both suggest that good group performance is a function of the conformance of the members of the group to each other and to the general sample of which they are a part.

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BOOKS

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CRITICAL REVIEWS OF RECENT BOOKS

The Journal of Social Psychology, 1954, 40, 339-345.

(Cattell, Raymond B. *Factor Analysis: An Introduction and Manual for the Psychologist and Social Scientist*. New York: Harper, 1952. Pp. 462.)

REVIEWED BY CHARLES WRIGLEY

The progress and change of emphasis in factor analysis is perhaps best indicated by consideration of its textbooks. In 1930, Spearman's *Abilities of Man* dominated the scene. The decade from 1930 to 1940 witnessed great innovations. These were systematically reported in the accounts of factor analysis offered by Cyril Burt, by Holzinger and Harman, by Godfrey Thomson, and by Thurstone. These authors do not always agree with one another, but collectively they provide an impressive indication of the vitality of the subject in the nineteen-thirties. The four books have remained the standard discussions of factor analysis up to the present.

The years from 1940 to 1950 will probably appear in retrospect to have been years of consolidation. We may be too close to the period to represent it adequately, but several characteristics may be noted. First, the mathematical statistician is increasingly interested in factor analysis. By way of evidence, there are Kendall's lectures in factor analysis at the London School of Economics, Tintner's discussion of the principal components method in his textbook in econometrics, and Rao's inclusion of factor analysis in his multivariate analysis course at the University of Illinois. Secondly, there has been widespread use of factor analysis, and many more variables have been included in the typical analysis than in the past. Thirdly, the rotational issue remains unsettled. Most British factor-analysts have not accepted Thurstone's concept of simple structure, with its oblique axes and second-order factors, whereas most Americans have done so. Fourthly, factor analysis, unlike most other statistical techniques, continues to make extensive use of judgmental procedures. No exact rules can be given for the derivation of communalities; there is little agreement amongst quite experienced factor-analysts upon the number of factors to be extracted; and the usual graphical method for attaining simple structure is not only very laborious but also very subjective.

The earlier accounts of factor analysis have been revised, but Cattell's is the first completely new account in a decade. Let us consider, then, how

Cattell handles these new features of factor analysis in his textbook. First we may note that the book is avowedly written for the psychologist rather than the statistician. The mathematical formulation of factor analysis is sketched in very lightly. This textbook does not appear to be the one for the statistical student. This should not be construed as a criticism, since the graduate student in psychology is not usually able to follow a rigorous mathematical treatment. The psychologist of 1950 generally wants his mathematics presented in verbal form, or relegated to appendices and footnotes. So long as most psychologists receive inadequate mathematical training, several textbooks will be needed in factor analysis written at differing levels of mathematical sophistication. The book should be well suited to the audience for which it is designed. There is no one who has used factor analysis more extensively than Cattell or who is more familiar with its practical problems and manipulations. The account will be within reach of the graduate student without extended mathematical training. There is a pleasant style of writing, and diagrams and numerical examples are freely given. All in all, Cattell has written probably the simplest account of factor analysis to date, and for that reason alone his text represents a very welcome addition to the psychological literature.

It is hardly surprising to find that Cattell stresses the computational side, since no one has done more than Cattell and his co-workers (notably Saunders and Haverland) to show how efficiently punched-card equipment can be used for calculating correlations and factor loadings. The final chapter is on "the strategy and tactics of economy in computing." From the time of the punching of test measurements on cards, all calculations can be carried out on punched-card equipment until the multiple-group factor loadings are obtained. Even the search for simple structure is partially mechanized. The plotting of graphs and the determination of the new axes continues to be done by hand, but the IBM equipment is used for matrix multiplications. Nor is this mechanization of the calculations of factor analysis at an end. An appendix describes matrix multiplication on an electronic computer, and the Illiac (the University of Illinois electronic computer) is now being used regularly by psychologists. If electronic computers become more generally available, we may expect to find more about electronic computers and less about punched-card techniques in the next edition of Cattell's book. The development of these new machines will probably lead to greater use of the maximum likelihood method and the principal axes method in place of the centroid; so that a more extended account of these procedures will be required even in a survey of factor analysis designed for the non-specialist. It

may be noted that Cattell's account of the principal axes method is not only brief, but also in error in one important respect. Cattell states (pp. 131-133) that the centroid method must be used if there is to be any reduction in the number of common factors, since the principal axes method necessarily supplies as many common factors as there are tests. Cattell is not the only one to have assumed that the principal axes method cannot be used with communalities in the leading diagonal. The position really is that the principal axes method minimizes the sum of squares of the residual correlations, whereas the centroid method minimizes the sum of the absolute values. The centroid method is accordingly an ingenious approximation to the principal axes, providing rather similar results in a small fraction of the time when a desk calculator is used. Either method can be used with communalities in the diagonal, when the aim is to reduce the residual correlations to zero with fewer factors than tests, or with unities, when as a rule as many factors will be required as there are tests. (Many of the later factors when unities are used have only one or possibly two high loadings, so that it does not seem altogether reasonable to call them "common factors.")

Cattell has accepted without reservation the need for rotation to simple structure and for the use of oblique axes. Chapters 12-16 present a detailed account of his techniques for rotation. These five chapters will be of the greatest use to anyone who sets out on the present trial-and-error procedure for attaining simple structure. Cattell does not follow Thurstone's criteria, but is influenced principally by the goodness of fit of the hyperplanes—that is, by the number of zero and near-zero loadings in the factor loading matrix. He advocates treating any loading within the range $\pm .10$ as zero. This selection of limits to the hyperplane is not based upon any sampling considerations, but upon the study of solutions previously obtained. In this reviewer's judgment, the student is insufficiently warned of the somewhat arbitrary nature of many rotational decisions. Nor does Cattell appear to provide any systematic defense in this book of his claim that a simple structure solution is more nearly invariant and more meaningful scientifically than any other. A similar point might be made with respect to Cattell's treatment of communalities; we find in Cattell's book (as is true to some extent of all other textbooks in factor analysis) that there is an implicit acceptance of the need for communalities. No evidence is provided that the present methods for estimating communalities succeed in reducing the correlation matrix to minimal rank. Nor is it shown that the factor loadings are appreciably altered and the interpretation of factors changed as a result of inserting communalities rather than unities in the principal diagonal of the correlation matrix.

The graduate student might be pardoned for getting the impression that the factor-analyst subscribes to communalities and to simple structure as articles of faith. Cattell gives useful and fair-minded discussions of alternative procedures which have been suggested for estimating communalities and for rotating to simple structure, but fails to make any detailed examination of his reasons for adopting these key concepts.

Cattell recognizes that a major weakness—perhaps the major weakness—of contemporary factor analysis is its dependence upon subjective judgments. He points out that "it is to some extent possible to manipulate the number of factors (by communality assessments) and their nature (by rotation) to fit quite a range of hypotheses" (p. 124). He advocates "blind rotation" (p. 90) in an effort to avoid this. Yet even in this "blind rotation" there is no assurance that two investigators starting with the same correlation matrix will reach the same results. The skillful and experienced factor-analyst seems to be as much an artist as a scientist. It might be held that the most urgent challenge to factor-analysts in the nineteen-fifties lies in the development of objective techniques. We need exact procedures for deciding upon the number of factors to be extracted, for calculating rotated factor loadings, and for the matching of factors. Mathematical help will almost certainly be required in the solution of these problems. Therefore it will become obligatory for the psychologist to formulate his problems in terms which the mathematician will understand. If completely objective methods can be developed, textbook accounts will become much more straightforward, and the controversies between factor-analysts will be much diminished.

A special word should be said about the third part of the book, dealing with more general issues such as the number of factors to be extracted, the selection of variables, and the planning of factorial investigations. Cattell's own contributions to factor analysis, such as the applications of the covariation chart techniques, parallel proportional profiles, and the use of marker variables in a matching formula, are considered in some detail. For the person already versed in factor analysis, this may well prove to be the most useful section, providing a view of the current development of Cattell's own thinking.

In Chapter 20 Cattell urges that factor analysis be used along with controlled experimentation. He has some intriguing suggestions as to ways in which experimental conditions may be systematically varied and the results handled by factor analysis. For example, in his method of "condition-organism factorization," his plan is to vary stimulus conditions in a controlled way from subject to subject. His design will have been structured in such a way

that these variations in stimuli appear as factors in a factor analysis of the responses of the subjects if the responses have indeed been affected by these changes in experimental conditions. In effect, he is seeking to combine characteristics of the analysis of variance and of factor analysis into a single experimental design.

This indicates a greatly widened view of the rôle of factor analysis in psychological research. Classical experimentalists and mathematical statisticians alike have generally argued that factor analysis is appropriate only in those situations where hypotheses are not readily formulated. Its function is merely to supply a broad overview of the relations in the field. On this view factor analysis is a "last resort" technique to be used only when there is no other available way of analyzing the data, and to be replaced by analysis of variance and other statistical techniques once psychologists are able to express their hypotheses more exactly.

Cattell, then, is seeking to extend the area of usefulness of factor analysis. The onus appears to be upon him and his co-workers to design experiments which show that his proposals are valid. This seems to imply a logical task as well as an empirical one, viz., an intensive examination of the relationship of factor analysis and the analysis of variance. These two techniques have mostly been developed independently of each other, and each provides a statistical technique for handling data with multiple sources of variation. Possibly the most systematic comparison to date of the two techniques has been that of Burt (1). He concludes that an ordinary analysis of variance can be used to provide much the same factors as are obtained by factor analysis. He sees factor analysis as having the advantage of weighing the tests differentially. On the other hand, he considers analysis of variance to be distinguished not only by the existence of definite tests of significance, but also by the explicit prior formulation of the partitioning of the data into factors. Cattell, however, seems to suggest that even when this latter condition is fulfilled, factor analysis will often meet the demands of the psychologist more adequately than analysis of variance, "in requiring no supposition as to which are dependent and independent variables, and in revealing whether the independent variables as assumed in the analysis of variance are in fact mutually independent and the really important independent influences in the field" (p. 10). The further development of Cattell's views and the course of his experimentation promise to be of the greatest interest. It seems clear that we have by no means exhausted the possibilities in factor analysis of novel designs, and there is no one who has displayed greater ingenuity than Cattell in the planning of factor analyses in very diversified fields. If he can effec-

tively use factor analysis for the designing and analysis of experiments in the way he proposes, he will have made a major contribution to method in psychology.

Before factor analysis can hope to fill this rôle, more needs to be known about the extent to which factors vary from one experiment to another. Obviously factor analysis cannot provide any basic list of concepts if a new set of factors is given by each experiment. A large class of problems seems to be subsumed under the general heading of "factorial invariance" (We may note that "factorial consistency" would probably be a better term, because of the specialized mathematical definition of "invariance"). We need to know the effects of varying (*a*) the tests in a battery and (*b*) the sample of persons, upon factorial structure. We may have random samples, or samples selected on some special grounds. Our interest may be restricted to finding transformations to give a configurational consistency, that is, similar patterns of high and low (near-zero) loadings, or we may want to find the rotations giving the greatest attainable degree of (*a*) proportionality or (*b*) numerical agreement. Cattell, because of his extensive program of research, has not been able to escape these problems. He has two lines of approach to the matching of factors: (*a*) to show that there are significantly more agreements in the high loadings than might be expected upon a chance basis, thereby establishing configurational consistency; (*b*) to find rotations to secure proportionality of loadings for the factor loadings of the two matrices. Since the time of writing his textbook, Cattell has made further advances in the handling of these two products. These are reported in papers yet to be published (Baggaley is co-author of one), and we may anticipate a considerable extension of this part of his book in any later edition. He has by now, for example, developed a generalized algebraic procedure for finding the transformation matrices which give the greatest possible degree of proportionality. This precise mathematical formulation is very welcome, and appears to warrant extensive trial. Two reservations must be entered. First, Cattell's current procedures apply to the case when the same set of tests is given to two different samples of subjects. He does not consider the further problem of matching the factors when the persons are the same, but the two batteries of tests are different. Secondly, he seems to expect that his "parallel proportional profiles" will not only provide matching factors from one experiment to another, but will also give a clear factor pattern of the type which is sought in "simple structure." This does not necessarily follow. If the same tests are given to two random samples, the two principal axes will already tend to proportionality, and the rotated solutions will more closely resemble

principal axes than simple structure solutions. These comments should not be construed to detract from the importance of Cattell's discussion. He himself would probably not claim to be able as yet to give the final word upon any of these problems. His provocative and illuminating suggestions, however, will be indispensable reading to any psychologist who is concerned with comparing the results of one factor analysis with another.

To summarize, Cattell has written the simplest account we possess of the theory and practice of factor analysis, including a detailed consideration of the rotational problem and a rather full account of computational methods. Mathematical discussions are kept to a minimum. His book will be very useful not only to the graduate student but also to the "practitioner." His account of the use of factor analysis in classic experimental situations is of the greatest theoretical interest. My main criticism—and this is perhaps more a criticism of contemporary factor analysis than of Cattell's book—is that factor analysis is presented largely as a subjective technique, which is dependant upon the exercise of judgment. Skill in factor analysis is acquired only from long experience. After 50 years, it is evident that we have not yet an objective and rigorously developed statistical procedure.

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